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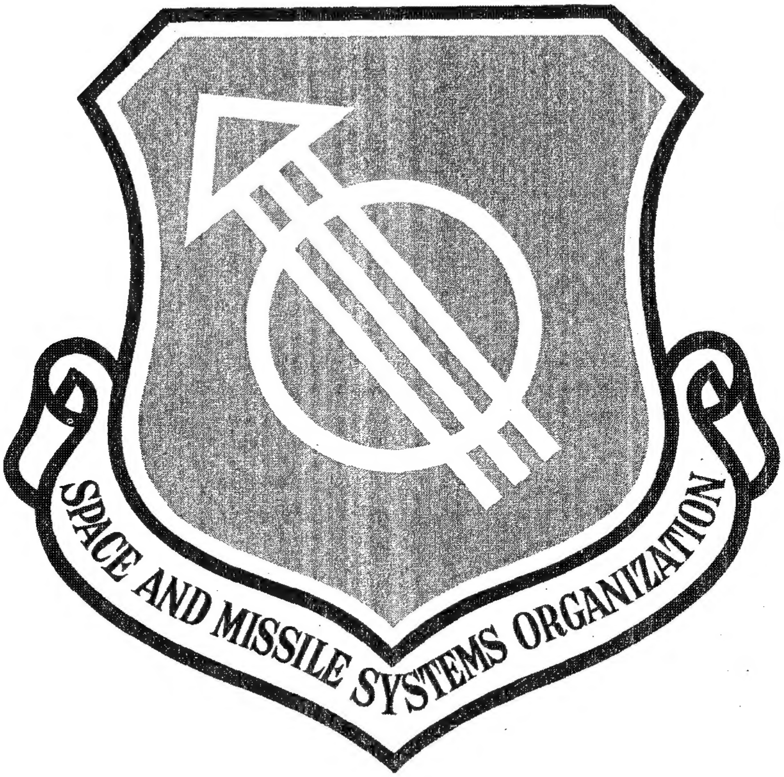
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Prepared by

S. A. Grassly

1 November 1971

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213. Status Report on Agena D (Program S-01A) August 62.

214. Msg from SSD to Lockheed, Cite SSH 27-8-33, 27 Aug 62.

215. Memorandum of Agreement, subj: Management Relationships Between SSH-SSZI, SSZN, SSZX and LMSC, 5 Sep 62.

216. SSD (SSHKK) Ltr to multiple address, subj: Authorization for type of Contract; Contract AF 04(695)-198, 7 Sep 62, w/1 atch.

217. SSD (SSHR) Ltr to SSZ, subj: Agena D FY-63 Funding Requirements to Support SSZ Program Requirements, 11 Sep 62.

218. SSD (SSH) Ltr to SSVR, subj: Agena D FY-63 Funding Requirements to Support NASA Program Requirements, 11 Sep 62.

219. Msg from SSD to CSAF, Cite SSH-13-9-10, 13 Sep 62.

220. Msg from SSD to AFSC, Cite SSH-13-9-11, 13 Sep 62.

221. SSD (SSHAA) MFR to Capt George W. Watts, 17 Sep 62.

222. SSD (SSH) Ltr to Lockheed, subj: Production of Optional Kits under the -68 Contract, 24 Sep 62.

223. SSD (SSG) Ltr to Secy of the Air Force (SAFFM), subj: FY-62 and FY-63 Agena D Funding Requirements, 27 Sep 62 (S/Gp3).

224. SSD (SSH) Ltr to Lockheed, subj: First Article Configuration Inspection of S-01A/13, 17-19 Sep 62, 28 Sep 62.

225. Msg Cite SSH 28-9-33, 28 Sep 62.

226. Lockheed ltr to AFSSD (DCCA), subj: Management of the S-01A Program, 1 Oct 62, w/1 Atch: Program Management Paper.

227. 1st Ind (Uncl w/o C/Gp4 Atch), SSD to SSVSP, subj:Liquid Rocket Engine Data, 5 Oct 62, w/1 Atch: Engine Data Chart.

228. SSD (SSHGD) Ltr to Lockheed, subj: Ground Rules for Management of the AC-1 System, 8 Oct 62.

229. Msg, Cite SSH 12-10-23, 12 Oct 62.

230. SSD (SSH) Ltr to SSG, subj: Agena Presentation, 15 Oct 62.

231. Msg (C/Gp4), Cite SSH 15-10-28, 15 Oct 62.

232. 1st Ind, SSD (SSH) to SSVZR, subj: Agena D/Gemini Configuration," 16 Oct 62.

233. Memorandum to SSH (Col Fletcher), subj: S-01A Requirements Based on TAT Boosted Missions, 18 Oct 62.

234. SSD (SSH) Ltr to AFPRO (Col Voyles), Lockheed, subj: AFPR Logistics Surveillance of Program S-01A, 19 Oct 62.

235. SSD (SSHR) Ltr to SSVZR (MajAlbert), subj: Optional Equipment Requirements for S-01A Vehicles, 22 Oct 62.

236. SSD (SSH) Ltr to SSHKK, subj: Sole Source Justification, Contract AF 04(695)-221, 22 Oct 62.

237. Msg, Cite SSH 23-10-37, 23 Oct 62.

238. SSD (SSHR) Ltr to SSO (Col Hedrick), subj: Agena D C&C Optional Equipment, 31 Oct 62.

239. SSD (SSHR) Ltr to SSVR, subj: Agena D FY-63 Funding Requirements to Support NASA, 1 Nov 62.

240. SSD (SSH) Ltr to Lockheed, subj: S-01A Vehicle Assignment Philosophy, 2 Nov 62.

241. SSD (SSH) Ltr to Lockheed, subj: Fixed Ullage Rocket Carrier Problem, 8 Nov 62.

242. SSD (SSHKK) Ltr to multiple address, subj: Request for Authority to Extend Definitization Data and to Obligate Additional Funds - Letter Contract AF 04(695)-68, Agena D, 14 Nov 62.

243. SSD (SSH) Ltr to SSVZ, subj: Proposed NASA/Air Force Management Agreement, 14 Nov 62.

244. SSD (SSHKK) Ltr to multiple address, subj: Request Authorization for Letter Contract AF 04(695)-233, 16 Nov 62.

245. SSD (SSHGD) Ltr to 6595 ATW (Col Perry), subj: Umbilical Test Philosophy and Blanket Removal for SLV3/S-01A/Payload FSV, 26 Nov 62.

246. Msg (C/Gp4), Cite AFSSV-KQ 98986, 302127Z Nov 62.

247. SSD (SSH) Ltr to Lockheed, subj: First Article Configuration Inspection of S-01A/19, 6-23 Nov 1962, 12 Dec 62.

248. Historical Data - Jul-Dec 1962 from SSZAR to SSZA, 24 Jan 63.

249. NASA Ltr to Gen B. A. Schriever, 25 Jan 63.

250. Contractor Performance Evaluation Report on AF Contract AF 04(695)-21, with Lockheed Missile and Space Company, Sunnyvale, California, 14 Feb 63, (C/Gp4).

251. Ltr sgd Gen B. A. Schriever to Dr. Robert C. Seamans, Jr., 6 Mar 63.

252. Space Systems Division USAF S-01A Management Package, 20 Mar 63 (S/Gp3).

253. Msg, Cite MSFA 16-4-35, 161700Z Apr 63.

254. SSD (SSV) Ltr to Distribution, subj: Letter of Understanding Between NASA Lewis Research Center and USAF Space Systems Division for Transfer of NASA Agena Contracts, 9 May 63.

255. SSD (SSZAC) Ltr to SSZN and SP-206, subj: Configuration Control Management of Program S-01A Booster Vehicles, 19 Jun 63 (S/Gp4).

256. Msg Cite AFRSTD 76993, undated, and Msg Cite MSFA 15-7-22, 152045Z Jul 63.

257. AFSC (MSFAR) Ltr to multiple address, subj: Transmittal of Memorandum of Agreement, 20 Aug 63, w/1 Atch: USAF-NASA Memorandum of Agreement NASA Office of Space Sciences Agena Launch Vehicle Program, 9 Aug 63.

258. SSD (SSVA) Ltr (C/Gp4) to SSV, subj: Annual Report of Achievements (3 Oct 1962 - 3 Oct 1963), 27 Sep 63.

259. DOD News Release No. 1396-63, 21 Oct 63.

260. Msg Cite MSFA 7-11-6, 071956Z Nov 63.

261. Summary Report - Transfer of NASA Agena Programs from AFSSD to NASA LeRC, 31 Dec 63.

262. SSD (SSVAT Ltr to Hq AFSC (MSFA), subj: Summary of Transferred Agena Programs, 3 Jan 64.

263. SSD (SSVA) Ltr (Uncl w/o C/Gp4 Atch), subj: Historical Report: 1 Jul 1963-31 December 1963, 4 Feb 64, w/2 Atch.

264. SSD (SSVAC Ltr to SSVA (Col Blum), subj: Erection of Thor-Agena in Front of Building A, 16 Apr 64.

265. SSD (SSVA) Ltr (C/Gp4) to SSEH, subj: Historical Report, 1 January 1964-30 June 1964, 12 Aug 64, w/5 Atch: 1 (U); 2 (C); 3 (U); 4 (C); 5 omitted; 6 (C).

266. SSD (SSG) Ltr (Uncl w/o C/Gp4 Atch) to ARDC (DMSF MajGen Ritland), subj: Recent Agena Flight Problems, 12 Nov 64, w/1 atch: Proposed letter to Sec McMillan from Gen Schriever, w/1 atch.

267. SSD (SSG) Ltr (Uncl w/o C/Gp4 Atch) to AFSC (Gen Schriever, subj: General Dynamics/Astronautics Proposal to Increase SLV-3/Agena Payload Capability, 27 Nov 64, w/2 Atch; Atch 1 C/Gp4.

268. SSGA Memorandum for Generals Funk and Cooper (FOUO), subj: Request for Authority to Raise Major Agena Subcontractors to Associate Status, 10 Dec 64.

269. SSD (SSK) Ltr (C/Gp4) to AFSC and Hq USAF (in turn), subj: Request for Determination and Findings Pursuant to AFPI 3-214, 25 Jan 65.

270. SSD (SSVA) Ltr (C/Gp4) to SSEH, subj: Historical Report, 1 July 1964 - 31 December 1964, 5 Feb 65, w/5 Uncl Atch.

271. Gemini Atlas Agena Target Vehicle System, Management and Responsibilities Agreement between the National Aeronautics and Space Administration Manned Spacecraft Center and The United States Air Force Air Force Systems Command, Space Systems Division, Mar 65.

272. SSD (SSGA) MFR, subj: Biosatellite Program -- Call from Cols Pickering and Swan of AMD, 9 Mar 65.

273. Memorandum for Gen Funk, Thru Gen Cooper, from Col Hamilton, subj: Advanced Life Support Capsule, 2 Apr 65.

274. SSD (SSK) Ltr (C/Gp4) to AFSC and Hq USAF (in turn), subj: Request for Determination and Findings Pursuant to AFPI 3-214, 25 May 65.

275. SSD (SSLO) Ltr to AFSC (SCOO), subj: Request for Organization Change - Gemini Agena Division (SSVAT), 29 Jul 65.

276. SSD (SSVA) Ltr (C/Gp4) to SSEH, subj: Historical Report, 1 January 1965 - 30 June 1965, 9 Aug 65, w/5 Atch: Atch 1 (C/Gp4).

277. Msg Cite SSG 10111, 20 Oct 65.

278. SSD (SSV) Ltr to SSGS (B/Gen Martin), subj: Program 206-II Agena Launch Capability Contract, 3 Nov 65.

279. AFSC Ltr sgd Gen B. A. Schriever to SSD (MajGen Funk) and AEDC (BrigGen Gossick), 22 Nov 65.

280. Msg Cite SSG 10125 Nov 65.

281. SSD (SSVA) Ltr (C/Gp4) to SSEH, subj: Historical Report, w/6 Atch: 1. (U); 2. omitted; 3 (U); 4. (U); 5 (C); 6. (U); 7. (C), 8 Feb 66.

282. SSD (SSK) Ltr to AFSC and Hq USAF, subj: Request for Determinations and Findings Pursuent to AFPI 3-214, 8 Jul 66.

283. SSD (SSVA) Ltr (Uncl w/o C/Gp4 Atchs 2, 4, 5 & 8), subj: Historical Report for the Period of 1 January 1966 - 30 June 1966, 29 Jul 66.

284. SSD (SSV) Ltr to SSGS (Gen Martin), subj: Agena Guidance and Control Subsystem Development, 1 Feb 67, (C/Gp3).

285. SSD (SSVA) Ltr (Uncl w/o C/Gp4 Atch 2, 7, 8 & 9) to SSV, subj: Historical Report, 1 Jul 66 to 31 Dec 66, 3 Feb 67.

286. DAF Ltr (C/Gp3) to SSVA, subj: Attitude Control System Configuration, 8 Feb 67.

287. DAF (SP-7B) Ltr to SSVA (Major Bell), subj: Standard Agena Allocation, 13 Feb 67.

288. AFRPL (RPG) Ltr to SSD (SSGV/Col D. V. Miller), subj: Advanced Agena Development, 26 Mar 67.

289. SSD (SSVAP) Ltr (S/Gp3) to SSEH (Mr. McClellan), subj: Users of Standard Agena Vehicle, 7 Apr 67.

290. SSD (SSVA) Ltr to SSV (Col Hamilton), subj: Improved Agena Development Program, 28 Apr 67.

290a. Briefing Charts (S/Gp3), Report of Special Board on Agena Procurement, SAFSP, 1 May 67.

290b. Msg (C/Gp3), Cite SSG 67-12, 24 May 67.

290c. Msg (C/Gp4), Cite SCSS 22931, 262111Z 67, May 67.

291. SSD (SSV) Ltr to SAFSP (Gen Martin), subj: SSD Position on SAFSP Proposal for a New Production Management Concept for Agena, 2 Jun 67.

292. MFR sgd Maj Robert R. Crawford, 7 Jun 67.

293. SSD (SSVA) Ltr (C/Gp3) to SSGS (Gen Martin), subj: Improved Agena Performance Requirements, 12 Jun 67.

294. DAF (SP-2) Ltr (C/Gp3) to multiple address, subj: Improved Agena, 15 Jun 67.

295. Lockheed Briefing Charts, subj: Customized Standard Agena, 21 Jun 67.

296. DAF (SP-1) Ltr (C/Gp3) to SSG (Gen Cooper), subj: Improved Agena, 23 Jun 67.

297. MFR sgd MajRobert F. Crawford, subj: Improved Agena Requirements Meeting, 28 Jun 67.

298. Briefing Charts on Agena D and E Management Problems, 11 Jul 67.

299. SAMSO (SMVA) Ltr (Uncl w/o C/Gp4 Atch 5 and 8) to SMV, subj: Historical Report, 27 Jul 67.

300. Program Plan, subj: Customized Standard Agena, Support Engineering Program Plam, Contract [redacted] 27 Jul 67. 50X1

301. Briefing Charts, subj: Standard Agena, 28 Jul 67.

302. SAMSO (SMVA) Ltr to SMGS (Gen Martin), subj: Agena D Contract Structure, 2 Aug 67.

303. SAMSO (S G) Ltr (C/Gp4) to SAFSP (Gen Martin), subj: Improved Agena Flight Test, 11 Aug 67.

304. DAF (SP-1) Ltr (C/Gp3) to SMG-2 (Gen Cooper), subj: Improved Agena Flight Test, 14 Aug 67.

305. SAMSO (SMV) Ltr to SAFSP (Gen Martin), subj: New Production Management Concept for Agena, 22 Aug 67.

306. DAF (SP-1) Ltr (C/Gp3) to SMG-2 (Gen Cooper), subj: Improved Agena, 30 Aug 67.

306a. SAMSO (SMG-2) Ltr (C/Gp3) to SMGS (Gen Martin, subj: Improved Agena, 7 Sep 67.

306b. DAF (SP-1) Ltr (S/Gp3) to SMG-2 (Gen Cooper), subj: New Production Management Concept for Agena, 8 Sep 67.

306c. Memorandum for Gen O'Neill (C/Gp4) sgd MajGen Paul T. Cooper, subj: New Production Management Concept for Agena, 18 Sep 67.

307. MFR sgd LtCol Allen J. Poor, subj: Custom ~~Agena Briefing~~ to Gen Martin, 19 Sep 67, w/1 Atch: Briefing Charts, subj: Custom Agena.

50X1

308. DAF (Sp-2) Ltr (S/Gp3) to SMG-2 (Gen Cooper), subj: Procurement of Agena for SAFSP, 20 Sep 67.

309. SAMSO (SMG) Ltr to SCOM-27 (Col F. G. Morris, Jr), subj: Manpower Packages for the Titan III S and the Agena Program Office, 10 Oct 67.

310. Msg (S/Gp4), Cite SCSSM 36065, 182134Z Oct 67.

311. DAF [redacted] Ltr (Uncl w/o S/Gp3 Atch) to [redacted] (LtCol Wheeler, subj: Agena D Flight Summary, 25 Jan 68, w/1 Atch same subj.

312. DAF [redacted] Ltr to SME, subj: Final Agena Historical Report, 1 July - 19 October 1967, 15 Apr 68.

313. List of Contracts (containing Estimated Face Value) (C/Gp4), subj: Agena Vehicle, undated.

~~SECRET~~

A.D 88

JAN 3 1961

In Reply
Refer To:

SUBJECT: AGENA Configuration

TO: LMX (Mr. Gibson)

172

1. At the E-6 technical direction meeting of 28-29 December 1960, the basic configuration of the Agena B vehicle was finalized and requirements for the design were given verbally to LMSD. This configuration is the standardized Agena proposed by WDZYA as a result of recent investigations with Lockheed, and includes a model 10205 forward mid-body and equipment rack with a more efficient arrangement of equipments in this rack, as shown on LMSD Drawing SK-1212.

2. The major structural components of the vehicle are as follows:

a.	Forward Mid-body and equipment rack	- -	LMSD Model	10205
b.	Aft mid-body and engine thrust cone	- -	" "	5802
c.	Propellant tank assembly (2X)	- -	" "	6205
d.	Aft rack and roller assembly	- -	" "	6205
e.	Fairings	- -	" "	5205
f.	Engine nozzles thermal shield	- -	" "	6205
g.	Booster adapter	- -	" "	5205
h.	Rocket engine installation (45:1)	- -	BAC 8096	

3. The LMSD E-6 preliminary equipment list, LMSD/378673, should be modified to conform with paragraph 2. above, and to meet the requirements of a six day mission. The communication and control equipment to be provided is as follows:

a. Unitized Type II telemeter
b. VHF exit antenna
c. VHF orbit antenna
d. Exit orbit antenna switch
e. RF coupler TTC
f. Interim programmer Mod II
g. VHF RF assembly [illegible]
h. Transducers
i. Coax cables

The total dry weight of the Agena, including the adapter section but not including attitude control gas, or the vessels for this gas, should not exceed 2050 pounds.

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SAFSP-E-117

~~SECRET~~

4. The horizon sensor installation in the aft portion of the forward rack will require analysis and some modification of the Model 10205 forward rack, and the rearrangement of equipments will require thermal balance study. Also a new wiring harness must be designed. These requirements are well known to LMSD and should not jeopardize schedules. Lockheed already has authority for the design and fabrication of a mock-up to aid in meeting these requirements. The date for delivery of the first E-6 Agena to Vandenberg AFB is 20 November 1961. The launch date is 1 February 1962.

5. It is requested that the above information be confirmed to LMSD in writing and that they be directed to submit a proposed Work Statement and program plan, including a weight breakdown, to AFBMD/BMC by 16 January 1961.

6. It is further requested that the technical direction of LMSD by Aerospace/SAFSP for the SAMOS E-6 program be established by the appropriate addition to the LMSD contract.

SIGNED

PAUL J. HERAN, COLONEL, USAF
Deputy Director, Program II
SAMOS Project Office

Copy to: Aerospace Corp
WDZYA

89

LBZJR/hjm/2712 5 January 1961

Implementation of New Test Philosophy Discoverer Program, Contract AF 04(647)-558

Lockheed Aircraft Corporation
Missiles & Space Division
Sunnyvale, California

1. Reference your message, LMSD/376546, Subj: Implementation of New Test Philosophy Discoverer Program, Contract AF 04(647)-558, dated 20 December 1960.

2. Part 2 of your message referred to above, is not understandable since the gross objective of the New Test Philosophy is to decrease the costly period from manufacturing to launch for each vehicle. It is expected that implementation of the New Test Philosophy will result in a substantial credit to the overall Discoverer Program.

3. Part 3 of your referenced message also needs clarification since LMSD/375501, Subj: Submission of Test Procedure to Implement the Test Philosophy for Contract AF 04(647)-558, dated 1 November 1960, submitted a new test procedure for Air Force approval which provided for Discoverer vehicles number III and subsequent. It is not considered unreasonable to assume that submission of the test procedure was based on considerable evaluation and an ultimate LMSD conclusion that the new test philosophy was sound and in the best interests of the Contractor and the USAF. However, part 3 of your referenced message tends to convey that the test procedure was submitted for Air Force approval prior to adequate LMSD evaluation and study.

4. Request the information requested by AFBMC letter, same subject as above, dated 18 November 1960, be furnished at the earliest possible date. Further it is requested that the Contractor reaffirm the feasibility of attaining the basic objective of the new test philosophy as stated in LMSD letter to be:

"LMSD procedural improvement activity on system testing is intended to insure maximum utilization of test equipment through by-pass of SCTB for some vehicles and reduction of repetitive testing at any test center. The gross objective is to decrease the costly period from manufacturing to launch for each vehicle."

SIGNED

PHILIP STEINER, Lt Colonel USAF
Chief, [illegible]ction & Programming
[illegible]ite Division

cc: AFPR - LMSD

OFFICE SYMBOL	ORIGINATOR	LBZJR			
NAME (SIGNATURE)	Blair	M Farnum			
DATE	5 Jan. 61	5 Jan '61			

AFBMD Form 11 6lC COORDINATION SHEET Replaces AFBMD Form 11, 1 Jun 59 12-6-4
1 Nov 59 -558 S/A Folder 30 Nr 36

AIR FORCE OPS, Ogden, U

12 JAN

90

~~CONFIDENTIAL~~

(U) NASA AGENA "B" PROGRAM

(~~CONFIDENTIAL~~) Program Objectives - The basic objective of the NASA Agena B Program is to place a separable spacecraft on a prescribed lunar trajectory or into earth orbit to gather scientific information and data. The program will first demonstrate the capability of jettisoning the spacecraft shroud and separating the spacecraft from the Agena B vehicle. The program will also develop and demonstrate the capability of the Agena B retro system to retard the second stage. To achieve these objectives, the NASA will use the background and experience gained by the USAF in their Satellite System programs in terms of Agena engineering, procedures and launch operations.

(~~CONFIDENTIAL~~) The spacecraft for the lunar missions (Ranger) are manufactured by Jet Propulsion Laboratory under contract with NASA. The spacecraft are instrumented and designed to accomplish the following:

a. Make scientific studies of interplanetary media such as the hydrogen geocorona, interplanetary dust, fields and charged particles.

b. Obtain high resolution television photographs of the moon.

c. Land a survivable package on the lunar surface containing a thermometer and seismometer.

(~~CONFIDENTIAL~~) The satellite spacecraft are obtained under the direction of Goddard Space Flight Center (SFC). Meteorological satellites (Nimbus) are designed and produced by GSFC while the S-27 scientific satellite is a Canadian contribution to the International Geophysical Year.

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DOD DIR 5200.10

WDLPR-4-260

~~CONFIDENTIAL~~

703

~~(CONFIDENTIAL)~~ Flight Program - Although it is intended that this program will continue for several years beyond 1962, only the launches through 1962 are firm. The current schedule is as follows:

LAUNCH DATE	BOOSTER SYSTEM	MISSION
July 1961	Atlas/Agena B	Lunar Test Vehicle
October 1961	Atlas/Agena B	Lunar Test Vehicle
January 1962	Atlas/Agena B	Lunar Impact
March 1962	Thor/Agena B	Scientific Satellite
April 1962	Atlas/Agena B	Lunar Impact
June 1962	Thor/Agena B	Meteorological Satellite
June 1962	Atlas/Agena B	Lunar Impact
September 1962	Thor/Agena B	Backup
December 1962	Thor/Agena B	Meteorological Satellite

~~NOTE: Lunar flights will be launched from the Atlantic~~ Missile Range; all others will be made from Vandenberg Air Force Base.

The Atlas/Agena B booster system is capable of placing approximately 800 pounds in the vicinity of the moon. The Thor/Agena B booster system can place approximately 600 pounds into a 600 nautical mile circular polar earth orbit.

~~(CONFIDENTIAL)~~ Program Responsibilities - Under NASA Order No. S4601-G the Air Force is supporting the NASA Agena B Program. This will permit NASA to take full advantage of the technical and operational background and experience developed by the Air Force in space booster projects; permit contractors to discharge their contractual obligations with NASA and USAF utilizing already established management relationships, insofar as practicable; and provide NASA the benefits of contract administration services and procedures already established for USAF programs employing the same basic vehicles as those scheduled for this program.

~~CONFIDENTIAL~~

ACTION

19 JAN 1961 19 __ CQ

1961 JAN 19 AM 11:19

WDZYA

WDZE

HQA 033
PP RJWZBK
DE RJEZHQ 390
P 191818Z
FM HQ USAF WASH DC
TO RJEZFF/ARDC ANDREWS AFB MD
INFO RJWZBK/AFBMD LOSA CALIF
BT
/~~C O N F I D E N T I A L~~//FROM AFDSD-MS 78828
ARDC ATTN: RDRBS. THIS MSG IS IN THREE PARTS. PART I. REF OUR MSG AFDSD-MS 71646, DATED 22 DEC 1960, SUBJECT SANTA CRUZ TEST FACILITY. CONSIDERATION OF THE CONTINUED USE OF THIS FACILITY FOR TESTS OF THE AGENA SATELLITES WAS REVIEWED BY THE UNDER SECRETARY OF THE AIR FORCE DURING A PRESENTATION IN THIS HQ ON 17 JANUARY 1961. REPRESENTATIVES OF ARDC AND AFBMD PARTICIPATED. THE AFBMD PLANS FOR THIS FACILITY OUTLINED BY LT COL BLUM ARE CONCURRED IN. PART II. IT IS DESIRED THAT THE AFBMD CONTINUOUSLY REVIEW THE RELATIONSHIP OF THE SANTA CRUZ TEST FACILITY TO THE

PAGE TWO RJEZHQ 390
SATELLITE PROGRAMS WITH A VIEW TO THE EVENTUAL TERMINATION OF ITS FUNCTION AS A TESTING BASE FOR FLIGHT VEHICLES. THIS REVIEW SHOULD ASSESS THE RELATIVE VALUES OF SYSTEM TESTS CONDUCTED AT SUNNYVALE, SANTA CRUZ, MISSILE ASSEMBLY BUILDING, AND THE PAD TOWARDS THE OBJECTIVE OF STREAMLINING TEST PROCEDURES AND REDUCING PAD TURN-AROUND TIME. PART III. THE RESTRICTIONS IMPOSED UPON THE AFBMD BY OUR MESSAGE AFDSD-MS 71646 ARE REMOVED.
BT
19/1820Z JAN RJEZHQ

DOWNGRADED AT 3 YEAR INTERVALS:
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

NNNN

~~CONFIDENTIAL~~

72

UNCLASSIFIED

179

ROUTINE

X AF

AMC BMC LOSA

LMSD, SUNNYVALE, CALIF.

INFO: AFPR LMSD, SUNNYVALE, CALIF.
UNCL/FROM LBZJR

SUBJECT: CONTRACT AF 04(647)-558, IMPLEMENTATION OF NEW TEST PHILOSOPHY, DISCOVERER PROGRAM. REFERENCE IS MADE TO CONTRACT CHANGE NOTIFICATION 18 TO CONTRACT AF 04(647)-558, WHICH DIRECTED THE CONTRACTOR TO PREPARE AND SUBMIT, FOR AIR FORCE APPROVAL, A TEST PROCEDURE OUTLINING A NEW TEST PHILOSOPHY WHICH WOULD BE IMPLEMENTED AS APPROVED. THE CONTRACTOR IS HEREBY AUTHORIZED TO IMPLEMENT THE NEW TEST PHILOSOPHY AS OUTLINED IN LMSD/373501 LETTER, DATED 1 NOV 60, AND ~~AS~~ AMENDED BY LMSD/380910 LETTER, DATED 23 JAN 61 FOR THE SUBJECT CONTRACT WITH THE FOLLOWING EXCEPTIONS. (a) THE DECISION CONCERNING A REQUIREMENT FOR A SYSTEMS RUN TEST FOR VEHICLES SERIAL NUMBER 1111 AT SUNNYVALE, AFTER HOT FIRING AT SANTA CRUZ BE DEFERRED UNTIL AN ANALYSIS OF THE SYSTEMS RUN OF NASA VEHICLE SERIAL NUMBER 6001 CONDUCTED AT SUNNYVALE

3 FEB 61

LBZJR

SIGNED

OFFICE SYMBOL	ORIGINATOR RK FARHUM, JR. MAJ	OR USAF 1102/1	PHILIP STEINE	R, LT Colonel U	SAF
NAME (SIGNATURE) 2712			Chief, Production & Programming Br Satellite Division		
DATE		3 Feb	3 Feb 61	3 Feb 61	

UNCL

AFBMD Form 11
1 Nov 59

COORDINATION SHEET

Replaces AFBMD Form 11, 1 Jun 59

558 S/A Folder 30

AIR FORCE

AFTER HOT FIRING IS AVAILABLE. IF A SYSTEMS RUN IS REQUIRED CONSIDERATION WILL BE GIVEN TO CONDUCTING THESE TESTS AT THE VAFB MAB, IN THE EVENT CRITICAL LOADING IN THE SUNNYVALE SYSTEMS TEST AREA IS JUSTIFIED BY THE CONTRACTOR. (B) THE DECISION CONCERNING THE REQUIREMENT FOR A SYSTEMS TEST RUN ON SERIAL 1115 BE DEFERRED PENDING ACTION TAKEN ON SERIAL NUMBER 1111.

93,

AMC BALLISTIC MISSILE CENTER
UNITED STATES AIR FORCE
Air Force Unit Post Office
Los Angeles 45, California

PLY TO
TN OF:

CT: [illegible] FEB 13 [illegible]

TO: Make or Buy Structure Satellite Systems Contracts

Lockheed Aircraft Corporation
Missiles and Space Division
ATTN: Mr. D. J. Gribbon
Sunnyvale, California

1. The Contractor's ability to absorb the programmed and planned requirements for Agena Satellites and associated equipment is of great concern at this Complex. While it is recognized that the planned expansion of facilities and manpower by Lockheed will help the current overload condition, discussions with the Contractor mutually conclude that space, manpower, and management problems will not be completely alleviated thereby. Present physical separation of organization functions with leased facilities, etc., are projected on into the distant future. This inflexible situation requires immediate attention if both the government and Lockheed are to take full advantage of the proven Agena and LMSD organizational capabilities toward attainment of National objectives in space. The avenue most promising for relief from this untenable position appears to be additional subcontracting.

2. A review and analysis of the in-plant subcontract mix as represented in LMSD Report 2600, dated 30 October, discloses the following facts:

(Millions of Dollars)

	Inplant	Subcontract	Total	% Subcontract
SAMOS	54.1	67.7	121.8	55.6
MIDAS	32.7	14.7	47.4	31.0
DISCOVERER	47.4	27.1	74.5	36.3
C & C	36.2	31.0	67.2	46.1
NASA AGENA B	4.8	1.3	6.1	21.3
TOTAL	175.2	141.8	317.0	44.7

3. A further analysis which adjusts both the subcontract and total column

by deducting expenditures for items traditionally furnished by the government, i.e., engines, payload, etc., reveals the following:

(Millions of Dollars)

	Inplant	Subcontract	Total	% Subcontract
SAMOS	54.1	19.5	73.6	26.4
MIDAS	32.7	3.7	36.4	9.9
DISCOVERER	47.4	7.1	54.5	13.0
C & C	36.2	9.7	45.9	21.1
NASA AGENA B	4.8	1.3	6.1	21.3
TOTAL	175.2	41.3	216.5	19.1

4. While there is no absolute rule governing the percentage of Air Force procurements that must be subcontracted, the current percentage of subcontracting by LMSD on Satellite System contracts is far below desirable limits from the standpoint of national and program interest. A review of the in-plant effort indicates many areas where additional subcontracting could be employed. A few illustrative examples where additional subcontracting is not only considered practical but would probably introduce added economy and efficiency without compromise to schedule or technical standards are:

Recorder Set

Signal Data

Test Plug Consoles

Solar Array Assemblies

UHF & VHF Receivers & Transmitters

Analog Output Equipment

Magnetic Tape Recorders

G.P. PAM/FM Ground Station

Propellant Transfer Equipment

Checkout Consoles, Electrical and Guidance, etc.

Programmers

5. In order to relieve critical in-plant work loads and reduce overtime, to stabilise operations at a level that can be reasonably expected to be sustained, and in the interest of greater utilization of available know-how and capacity within industry as well as exploiting every means to introduce economies and efficiency of operation, it is requested that a concentrated effort be made to maximize the subcontract effort on Satellite System Programs. It is directed that a thorough screening of all items of equipment used in Satellite System Programs be made and a search of industry conducted with a positive approach to the objective of increasing subcontracting to sixty percent of the overall effort on a contract dollar Weapon System basis.

6. In negotiating the Make or Buy Structure for the follow-on contracts and new procurements, the contractor will be expected to present a composite in-plant subcontract mix in conformance with the goal stated above. Factual evidence of complete industry search for a broader subcontract base will be required to support any deviation from this target. The Contractor is requested to present by not later than 1 March at this complex, a composite Make or Buy structure for follow-on SAMOS, MIDAS, DISCOVERER, C&C, NASA AGENA B, and Advent Program contracts and the Pt Arguello, Complex 2 effort. At the Contractor's discretion, individual contract Make or Buy structures may be separately presented within this time period, provided that assurance is given that they will in aggregate meet the desired subcontract ratio and be time phased consistant with contract negotiation schedules.

7. It is requested that the contractor advise of his intentions concerning the negotiation of a composite or separate Make or Buy structure, as outlined above, by return correspondence.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
Chief, Satellite Division

cc: AFPR-LMSD

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LMZJR   14 February 1961

Procurement Requirements

WDZKC   WDZXM   WDZYA
WDZYD   WDZJA

1. The success of any procurement program is predicated to a very substantial degree on the timeliness of the request for procurement action as related to when the end product or service being procured is required.

2. The procurement cycle for our programs necessarily begins with the AFBMD determination of the end items or services required to meet program objectives Such determination should be translated as soon as feasible into a procurement request to AMC/BSC to permit necessary procurement action on our part.

3. In order to meet specific program objectives with respect to completion of a particular service or end product, the related procurement and production lead times must be considered. The procurement lead time, which is the time between affirmation of a requirement and contractual placement of that requirement, encompasses such actions as preparation of a suitable work statement; processing of Purchase Requests; submission of requests for proposal; preparation of proposal; evaluation and subsequent negotiation of proposal; preparation of the contract; review of contract by the BSC Procurement Committee; and finally review and approval of the contract by Headquarters, AMC. For a major procurement, and on a definitive contract basis, the total time required to accomplish the above effort is approximately six months. Utilization of letter contracts significantly reduces the procurement lead time but has disadvantages with respect to Air Force control of Contractor operations, i.e., a letter contract is analogous to a blank check authorization to proceed.

4. The production lead time, which is the time between contractual go-ahead and completion of the end item, varies of course with the magnitude and complexity of the end item being produced. The production lead time for a DISCOVERER Vehicle is approximately 12 months as opposed to approximately 14 months for MIDAS. This leadtime is an important consideration insofar as when the procurement requirement must be made known to BSC in order to have the contractor achieve the desired vehicle delivery date, and without the requirements for large re-allocation of assets, utilization of uneconomical amounts of premium labor, nor utilization of uneconomical and inefficient procurement practices in the subcontractor area.

5. Your cooperation in protecting both the procurement and production lead times by early translation of program requirements into procurement requests will enable this office to better serve your procurement needs, and in turn, will reflect itself in a more effective program.

6. It is requested, therefore, that this matter be brought to the attention of all personnel in your office who have responsibility for establishing procurement requirements so that we can re-energize our efforts in this area, so as to facilitate more effective procurement and production actions, which in turn will contribute to the more effective achievement of program objectives.

SIGNED

PHILIP STEINER, Lt Colonel, USAF
Chief, Production & Programming Branch
Satellites Division

Copies to:
LSZJ
WDZY
LSZP

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14 February 1961

National Aeronautics and Space Administration

Agena B Launch Vehicle Program

Management Organization and Procedures

Superseded by agreement dtd 9 Aug 63

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1.0 Introduction

1.1 The NASA Agena B Launch Vehicle Program includes procurement, engineering, launching, and tracking of Atlas-Agena and Thor-Agena flight vehicles to the injection of spacecraft in prescribed trajectories. Agencies involved in management of Agena B Launch Vehicle Program are the NASA Office of Launch Vehicle Programs (OLVP), Marshall Space Flight Center (MSFC), USAF Ballistic Missile Division (BMD) and Ballistic Missile Center (BMC). Principal contractors are Lockheed (LMSD) for Agena B vehicles and system integration, Convair (CVA) for Atlas boosters, and Douglas (DAC) for Thor boosters. Flight missions are the responsibility of the Jet Propulsion Laboratory (JPL) and Goddard Space Flight Center (GSFC) who will supply the spacecraft. Respective responsibilities of these organizations are defined in 3.0 below. Interface and integration matters between vehicle and spacecraft programs are coordinated by committees whose functions are described herein.

1.2 NASA Atlas-Agena and Thor-Agena vehicles are basically similar to the vehicle components of the USAF satellite systems, Discoverer, Midas and Samos. In order to take advantage of existing USAF capability and procedures, the NASA is implementing the Agena program through established USAF Satellite Systems channels.

2.0 Purpose

2.1 The purpose of this document is to define responsibilities, procedures, and implementing organization for the NASA Agena B Launch Vehicle Program in a manner which will:

2.1.1 Enable NASA to fulfill its responsibilities for achieving the basic missions of the NASA Agena B Program.

2.1.2 Enable NASA to insure that its technical, performance and operational requirements are fulfilled.

2.1.3 Permit NASA to take full advantage of the technical and operation background and experience developed by USAF in booster and space projects.

2.1.4 Permit contractors to discharge their contractual obligations with NASA and USAF utilizing already established management relationships insofar as practicable.

2.1.5 Provide NASA the benefits of contract administration services and procedures already established for USAF programs which employ the basic vehicles to be utilized in the NASA Agena Program.

3.0 Responsibilities

3.1 The NASA has overall responsibility for the scheduling, funding and successful accomplishment of the Agena B Missions including vehicles and spacecraft. Organization for implementation of this responsibility is as follows:

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3.1.1 Overall management authority for the NASA Agena B Launch Vehicle Program resides in the NASA Headquarters Office of Launch Vehicle Programs. The designated representative for carrying out OLVP functions is the Agena Program Manager. He is responsible for the dissemination of policy, approval of the budget, and insuring that program content is consistent with NASA objectives and fiscal resources. He is the central contact point at NASA Headquarters for the Agena Launch Vehicles Program and shall be cognizant of all matters relating to the Agena Launch Vehicles Program and its relationships with other NASA Programs.

3.1.2 Operating management responsibility and authority are vested in the Marshall Space Flight Center. The designated representative for carrying out MSFC functions is the Agena Project Director. He is responsible for the planning and execution of approved Agena Vehicle Projects, including technical direction, approval of specifications and contracts, and preparation of the budget. The Agena Project Director will assign, under his direction, an Assistant Project Director at AFBMD and a Plant Representative at LMSD. The Assistant Project Director will act as the NASA representative for the normal conduct of business with AFBMD/BMC and associated contractors. The Plant Representative will coordinate and be cognizant of NASA activities at Lockheed.

3.1.3 Responsibility for procurement together with logistic and management support to meet NASA Agena launch schedules are assigned to the USAF. AFBMD will be responsible for operational, administrative, and technical support for NASA Agena launch vehicles. This shall include personnel and facilities in support of launch operations as defined in 6.0 below. AFBMC will act as agent for NASA in contract procurement of launch vehicles in accordance with USAF procedures except as modified by NASA regulations and policy or by law. The BMD Director for NASA Agena Project is the normal USAF point of contact for BMD operations associated with the NASA Agena Program. The BMC representative is the NASA Agena Contracting Officer.

3.1.4 Flight missions are the responsibility of Jet Propulsion Laboratory (JPL) and Goddard Space Flight Center (GSFC) who will provide vehicle compatible spacecraft as required to satisfy NASA lunar and satellite missions.

4.0 Vehicle-Spacecraft Relationships

4.1 Interrelationships and integration of NASA Agena B launch vehicle and spacecraft programs are within the purview of committees and panels reporting to the Agena B Coordination Board. The Agena B Coordination Board and its associated committees and panels function to explore spacecraft-vehicle questions of mutual concern and to resolve interface problems existing between vehicle and spacecraft. Problems and recommended solutions are presented to the proper vehicle or spacecraft management authority for action. The Board, committees or panels do not possess line management or project direction authority, nor do their members by virtue of their position on the Board, committees or panels. However, the members are selected because their positions in their respective organizations permit them to make management and program direction decisions at the Board meetings.

4.1.1 The Agena B Coordination Board provides coordination for joint vehicle-spacecraft matters of policy, mission requirements, performance criteria, and planning. Matters which cannot be resolved by the Board will be submitted to the Directors of Space Flight Programs and Launch Vehicle Programs with alternative recommendations. The Chairman of the Agena B Coordination Board is appointed from NASA Headquarters staff with members from MSFC, JPL, GSFC and NASA Headquarters.

4.1.2 The Lunar Committee provides overall technical coordination for the vehicle and lunar spacecraft programs. Matters which cannot be resolved by the Lunar Committee or by the NASA Center Directors concerned shall be referred to the Agena B Coordination Board. The Chairman of the Lunar Committee is appointed from JPL and the Deputy Chairman from MSFC. Additional membership consists of the Chairmen of the Lunar Technical Panels.

4.1.3 The Earth Satellite Committee provides overall technical coordination between the launch vehicle and satellite spacecraft programs. Matters which cannot be resolved by the Earth Satellite Committee or by the NASA Center Directors concerned shall be referred to the Agena B Coordination Board. The Chairman of the Earth Satellite Committee is appointed from GSFC and the Deputy Chairman from MSFC. Additional membership consists of the Chairman of the Satellite Technical Panels and any others appointed by Committee Chairman.

4.1.4 Technical Panels are established for specific areas requiring vehicle-spacecraft integration. These panels provide technical liaison, information exchange, and solutions to interface problems. Free technical exchange is to be encouraged. Policy matters, management procedures and direction of contractors are not cognizant matters for technical panels. Problems which cannot be resolved by Technical Panels will be referred to the cognizant Lunar or Satellite Committee. Permanent panel members shall be from MSFC, JPL, GSFC, BMD and Lockheed. Additional members, or observers shall be introduced at the discretion of the Panel Chairmen.

5.0 Procedures

5.1 In order to achieve the control and supervision required for the NASA to properly discharge its responsibilities, while at the same time taking full advantage of established BMD/BMC procedures and contractor relationships, the following general procedures apply:

5.1.1 Direct contact and liaison between authorized NASA representatives and associated contractors will take place as required to discuss technical matters.

5.1.2 Technical direction of contractor engineering for NASA peculiar requirements, within the scope of existing contracts, will be exercised by direct NASA liaison with contractors. The MSFC Assistant Project Director at BMD and the Plant Representative at Lockheed are the authorized representatives of the MSFC Project Director for this function. Any NASA action which is likely to affect the statement of work, cost, schedules and/or any other AF contracts at Lockheed will be handled through BMD.

5.1.3 Direction of contractors, outside the scope of existing contracts, will be implemented by MSFC through BMD/BMC in accordance with jointly approved procedures.

5.1.4 Recommendations concerning vehicle matters, as agreed to by the Agena B Coordination Board or its associated Committees, shall be carried out by the MSFC Agena Project Director or OLVP Program Manager, as applicable. Items incapable of resolution by the Board, committees or panels shall be referred to the next higher authority as discussed in paragraph 4.0.

5.1.5 The MSFC project director will be kept currently informed of actions by BMD/BMC or contractors which affect the configuration of vehicles, schedules, or operations involved in the NASA Agena B Launch Vehicle Program.

5.1.6 BMD/BMC will furnish NASA with copies of all requests for proposals, contractor proposals, contracts and amendments relating to the procurement of vehicles and support for NASA Agena vehicles and boosters. Accompanying endorsements and recommendations by BMD/BMC at their discretion are encouraged.

5.1.7 NASA requirements will be placed on contract through individual contractual actions between BMC and contractors. Items procured and funds expended on NASA tasks will be clearly identified and accounted for by respective contractors in fiscal reporting procedures. Insofar as possible, NASA procurement will be accomplished by contracts separate and apart from contracts for the USAF Agena B program.

5.1.8 Contractor documentation will, in general, conform to USAF requirements except specific requirements may be waived by NASA subject to USAF concurrence. NASA may institute additional documentation and reporting procedures to fulfill its needs. These will be coordinated with BMD/BMC and covering contractual action accomplished as necessary. Contractor documentation will be forwarded by the contractor through BMD/BMC with copies direct to NASA and requires the approval of the MSFC Project Director prior to acceptance.

5.1.9 Inspections and tests required for acceptance of NASA vehicles and support equipment will be witnessed jointly by Air Force Plant Representatives and authorized NASA representatives except where the requirement for NASA representation is waived by the MSFC Agena Project Director.

5.1.10 Joint participation by BMD/BMC and NASA will take place in discussions with contractors, involving program management, fiscal matters, contracts, and negotiations. Direction of contractors in these areas will be implemented through BMD/BMC acting as agents for NASA.

5.1.11 Changes to basic Agena Launch Vehicles will be processed by the Agena Configuration Control Board, on which will be placed a MSFC representative. This representative will have final authority to approve changes to the NASA vehicles and will submit basic vehicle changes to the above board as required by NASA.

5.1.12 Engineering studies, test model fabrication, test and/or evaluations as may be required to support vehicle design and vehicle and spacecraft integration efforts will be directed by the MSFC Project Director through the Assistant Project Director at AFBMD and implemented through BMD/BMC.

5.1.13 NASA will reimburse the Air Force for costs associated with NASA requirements. USAF requests to NASA for funds will be accompanied by documentation on which the request is based. Contractor proposals with appropriate BMD/BMC endorsements and comments will be included where available. The initiating authority for expenditure or transfer to the Air Force of NASA funds in support of the NASA Agena Program is the MSFC Project Director.

6.0 Launch Operations -- AMR

6.1 In addition to the Agena Program personnel described above and the AMR staff, the following will be involved in NASA Agena launch activities at the Atlantic Missile Range:

6.1.1 The NASA Launch Operations Directorate (LOD) will have overall responsibility and authority for planning and execution of launch operations.

6.1.1.1 The NASA/LOD Test Support Office will be the formal point of contact with AMR for all agencies in connection with the NASA Agena B Program.

6.1.1.2 Flight Missions Office is responsible for coordinating the activities of the various NASA spacecraft groups and for the submission of spacecraft documentation to the Director of NASA Test Support.

6.1.2 The AFBMD 6555th Test Wing will act as the Agena B range management group for supervision of participating AF contractors at AMR. Additional responsibilities may be delegated to the Test Wing by the LOD.

6.1.3 A Spacecraft Mission Director for each Atlas-Agena B will be assigned by the Jet Propulsion Laboratory (JPL) or Goddard Space Flight Center (GSFC). He shall have overall responsibility and authority for mission decisions, for spacecraft preparation and for defining to the LOD criteria necessary for mission attainment. He shall participate in launch operations to insure mission readiness. No change in criteria, which will be suitably expressed in the Countdown Manual, may be made without his consent.

6.1.4 The Lockheed AMR field group is responsible for preparation of the Agena B stage, technical system integration of the overall Atlas-Agena B vehicle (including spacecraft interface) and participation in the countdown as described in 6.3.1.4 below.

6.1.5 The Convair AMR field group is responsible for preparation of the Atlas stage, and participation in the countdown as described in 6.3.1.3 below.

6.1.6 The Air Materiel Command Liaison Office (AMCLO) will provide services to BMD and LOD, as required, in the areas of Atlas-Agena B hardware receiving inspection, property accountability and control, secondary contract administration, quality control inspection, processing of Range charge vouchers, shipments, security, and labor problems.

6.2 Pre-launch organization

6.2.1 Each of the groups described in 6.1, above, will participate in day-to-day preparations for launch. Direct liaison between all groups is authorized, subject to the limitation that formal agreements can only be made by the controlling groups defined in 6.1.3, 6.2.2, and 6.2.3, below.

6.2.2 The Agena B Sub-Working Group of the Joint Atlas-Space Flight Test Working Group will act as the prime mechanism for coordinating flight preparations. Actions of this group which affect the NASA programs will be subject to final approval of LOD.

6.2.3 During the pre-launch phase of vehicle assembly, test and check-out, the LOD will observe the operations of Lockheed and Convair. This is intended for familiarization purposes. Technical discussions aimed at improving reliability, procedures, etc., will occur, provided that no changes will be made by the contractors without express certification of BMD.

6.3 Launch organizat

6.3.1 Blockhouse organizational duties are defined below. All individuals noted are located in the Blockhouse.

6.3.1.1 Operations and Test Director (LOD) has overall responsibility for the conduct of the countdown. He receives direct inputs from the Test Controller and the NASA Mission Director concerning vehicle and mission readiness.

6.3.1.2 Test Controller (BMD) controls the countdown activities and is responsible to the Operations and Test Director for launch complex operation and readiness of the entire vehicle and launch complex. An officer of the 6555th Test Wing will function as Test Controller.

6.3.1.3 Countdown Conductor (Convair) supervises the overall countdown of the total vehicle, including the spacecraft. He reports to the Test Controller.

6.3.1.4 Agena B Test Engineer (Lockheed) conducts the Agena B countdown, reporting to the Countdown Conductor.

6.3.1.5 Spacecraft Test Engineer (NASA) performs the spacecraft countdown, reporting to the Countdown Conductor concerning readiness of the spacecraft. He also advises the Mission Director of Spacecraft countdown status.

6.3.2 Organization duties of persons associated with launch operations, but located outside the Blockhouse, are noted below:

6.3.2.1 Mission Director assigned by JPL or GSFC provides local direction of all mission activities at AMR, collating inputs from space track, communications, Spacecraft Test Engineer, etc., to determine total mission readiness for launch. He informs the Operations and Test Director on all pertinent matters regarding worldwide system status and confers with him on mission status.

6.4 Test Reporting

6.4.1 Reports on Agena B test operations at AMR will be coordinated and jointly signed by the appropriate representatives of NASA and the AFBMD 6555th Test Wing. Distribution of the reports will be made by LOD.

Approved:

Robert C. Seamans Jr.

Robert C. Seamans, Jr.
Associate Administrator
National Aeronautics and Space
Administration
(30 January 1961)

Approved:

B. A. Schriever

B. A. Schriever
Lieutenant General, USAF
Commander
Air Research and Development
Command

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HEADQUARTERS
AIR FORCE BALLISTIC MISSILE DIVISION (ARDC)
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO
ATTN OF: WDZ

SUBJECT: Responsibilities of the Aerospace Corporation

FEB 23 1961

TO: WDRV
WDG
In Turn

1. As Aerospace builds in numbers of people and in capability, more and more issues as to the way in which AFBMD and Aerospace work together, and the responsibilities which each agency should have, arise. Many of these issues must be decided on a case by case basis and I think considerable progress is being made. There is one area which I believe will become a matter for decision in the near future. This has to do with the role of Aerospace in space systems at the launch base.

2. As you know, in the Ballistic Missile Program the STL has -- in the development of Atlas, Titan, Thor and Minuteman -- occupied essentially a line position at the launch base, functioning in the role of test director. The STL responsibilities in this role are well documented. I believe that the arrangements made, which have applied primarily to Patrick AFB and to the Ballistic Missile Program, were appropriate for a major new missile system under development. The technical supervision required at the launch base to insure that guidance, re-entry vehicles, propulsion, and airframe were properly integrated and checked out required at that point in history more technical management talent than the Air Force had in its inventory.

3. The same situation does not prevail today in the space business, at least insofar as present space boosters are concerned. For over two years, we have been operating at VAFB without benefit of an "STL-like" test director. I think the results speak for themselves. Further it is Colonel Cody's feeling that Systems Engineering and Technical Direction is basically a function properly performed at Inglewood but which should not be performed in the field. It is certainly hard to determine what Systems Engineering is going to be accomplished at VAFB on the Atlas-Agena combination by Aerospace. I would therefore propose that a policy be established to the effect that Systems Engineering and Technical Direction does not extend to our space launch activities and that Aerospace Corporation not be given a line function in our space launch operations. Exceptions to this policy probably should be made on occasion and let me give an example: When the Phoenix booster comes to the flight test base it is entirely possible, depending on the management structure

selected, that the arguments which led to line responsibilities for STL at the launch base early in the Ballistic Missile Program should again be followed for the development of this major new space Booster. I do not feel exceptions are appropriate for programs such as Saint, Advent, E-6, Transit, and other similar program which utilize proven vehicle combinations for the booster phase. Our two launch Wing commanders may desire technical assistance from Aerospace and if they do, I certainly recommend that it be provided. In the long term interest of the Air Force in the space booster business, and in view of the manpower and dollar shortage which either does, or will exist for Aerospace, I feel that we should reduce their activities to technical assistance at both of our launch bases.

4. I have discussed this matter with Colonel Cody and with Colonel Wignall and they concur with the ideas expressed herein. I am equally certain from "sounding out" some Aerospace personnel that they will non-concur so that before the issue is officially raised with them, I need your assurance of support in this proposed policy. Your approval is requested.

SIGNED

HARRY L. EVANS
Colonel, USAF
Deputy C... ...ander
Space Programs

Copy to:
WDL (Col O'Neill)
WDZD (Col Kucheman)

~~CONFIDENTIAL~~ R&D 97

WDZYA/3047

Technical Data on the Agena Vehicle

24 FEB 1961

Mr. Robert H. Shatz, Technical Director
Hamilton Standard Division
United Aircraft Corporation
Windsor Locks, Connecticut, U.S.A.

Dear Mr. Shatz:

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Colonel Wertiman has asked me to answer your letter of 16 Nov 1960, File No. SP412-C1, Subject: Technical Data for Solid Propellant Booster Study. My apology for taking so long.

The attached data is typical data of a representative mission. Data will vary from vehicle to vehicle and mission to mission; however, this should not affect your study at this time.

I have discussed your letter with Mr. D. Bruch at Lockheed Aircraft Corporation, Missiles and Space Division, Sunnyvale, California. He has offered to confer with your people undertaking this study, if you feel the need for more detailed data. If you wish to visit Lockheed, please inform me of the areas of discussion and the security clearance of the people involved so that I can process the proper visit authorization.

Please give my regards to Ed Hall. I hope he's enjoying the winter.

Sincerely,

SIGNED

[illegible] F. [illegible]
Lt Colonel, USAF
Chief, Agena Division

1 Atch
1 cy, Technical Data, w/4 Atchs:
1. Drag Coefficient vs Mach Number (~~S~~)
2. Flt Variables vs Flt Time (~~S~~)
3. Flt Variables vs Flt Time (~~S~~)
(300 nm Apogee)
4. Max Shear & Moment Loads (~~S~~)
(Atch #1--Tech Data is SECRET.
All attachments controlled by WDZYA-3047)

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

If inclosures are withdrawn (or not attached) the classification of this correspondence will be [illegible]

OFFICE SYMBOL	ORIGINATOR WDZYA /amt	WDZ			
NAME (SIGNATURE)					
DATE	24 Feb 61				

Replaces ARDC Form 11, 1 Jun 59

~~SECRET~~

~~CONFIDENTIAL~~

TECHNICAL DATA

I.A. Interface geometry between the booster and the Agena B.

The Agena B comes with an adapter that fastens to the booster at a construction joint. This joint up to now has been at the payload adapter mounting ring of the corresponding missile. On the Atlas this ring has a diameter of 71 inches with bolts nearly equally spaced (exception is that four holes are slightly misplaced to act as locators). Electrical connectors to the Agena are fixed inside this adapter and are disconnected prior to separation by pyrotechnic actuated spring ejected disconnects. (standard cannon connectors attach to booster wiring). The adapter stays with the booster after Agena separation. (~~C~~)

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B. Separation requirements.

The booster must supply a signal which closes relays in the Agena. Relay closure actuates the separation devices and ignites retro rockets mounted on the Adapter (Note: Agena guidance functions are also necessary such that separation is one of four signals which occur in this time of flight). (~~C~~)

C. Special requirements at separation.

The booster must maintain its attitude through sufficient time for the Agena guidance system to be actuated. If cessation of attitude control occurs prior to separation, residual rates in all three axes must remain below 1°/sec. During separation, booster forward thrust must be zero. (~~C~~)

II.A. Description of the Agena B.

(1) Total gross weight is variable dependent on mission; maximum expected 21,000#; minimum, 15,000#. (~~S~~)

(2) Inertial moments for 19,500# vehicle in pitch and yaw are about 15,000 slug-ft^2 and about 300 slug-ft^2 in roll. (~~C~~)

(3) Agena B thrust at separation is zero. (~~C~~)

(4) Drag of the Agena.

A curve of C_d vs. Mach number is enclosed (see Figure 1). This curve uses a reference area of 78.4 sq. ft. (~~C~~)

(5) What orbital requirements affect booster design?

Agena B missions require that the booster be operated so that it will deliver the Agena at either 100 or 300 nautical miles with a [illegible] velocity without exceeding the heating

~~SECRET~~

WDZXA-344

DECLASSIFIED AFTER 12 YEARS.

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~~CONFIDENTIAL~~

~~SECRET~~

rates associated with the attached representative trajectories (see Figure 2 and 3). ~~(S)~~

(6) Velocity control requirement on the booster.

The booster must be cutoff such that the error in velocity at booster apogee is less than 5 fps. ~~(S)~~

(7) Velocity limits to be provided by booster.

Atlas presently delivers a 19,000# vehicle to 300 nautical miles with a 3 sigma probability of performance with 14,000 fps velocity. Agena velocity depends on mission and weight. ~~(S)~~

(8) Acceleration and temperature profiles for the Atlas and Agena B.

The representative trajectories includes the acceleration of both Atlas and Agena. Temperature profiles vs flight time are a function of selected booster configuration, material and trajectory. Agena temperatures are not a condition on booster design below the trajectory heating rates. (U)

(9) Limits and tolerances of acceleration, temperature, pressure and vibration for the present vehicles.

Atlas limits are unnecessary for a solid booster study. The Agena limits are dependent on the mission, however, for the 19,000# vehicle, longitudinal acceleration limit is 7.35g, lateral load limit is 1.5g with the other factors capable of accepting the trajectories. Vibration limits of the Agena have not been derived (the vibration spectrum has been analyzed to determine test specifications for components based on total booster - Agena characteristics). ~~(S)~~

(10) Attitude and dynamic pressure limits of Agena B.

Attitude data is significant only when considered with the combined booster Agena aerodynamics. A representative maximum bending moment and shear curve is inclosed (Figure 4). The following data is reference for Figure 4: 30,000 foot altitude, 7.5 degree angle of attack, MACH 1.4, 859 psf dynamic pressure, weight of 182,476 pounds, 2.03g's longitudinal acceleration, 0.332g's lateral acceleration. Dynamic pressure limit is about 900 psf (variable with nose configuration). ~~(S)~~

D. Design details of separation of Agena B from Atlas.

Except for the data in C.5 and C.6, the booster has no action or part of the separation. (U)

~~CO~~

III.A. Booster control requirement for launching the missile.

The booster must supply launch stability, structural integrity, and guidance for the required trajectory with the aim of placing the Agena at fixed conditions at booster apogee. The 3 sigma uncertainties at apogee velocity, 5fps; apogee altitude, 2 miles; time-to-apogee 0.5 seconds; inclination of trajectory, 0.1 degree. (~~S~~)

B. Telemetered data required from the booster during launching.

Booster data sufficient to prove its capability. (U)

C. What destruct and launch safety requirements of the booster must be provided?

The ranges, either AMR or PMR, have standard requirement documents. (U)

D. What are the acceptance test specification for solid rocket boosters?

Since solid rockets of a size capable of performing the mission do not now exist, acceptance specifications do not exist except in general terms. Standard Air Force specifications for aeronautical rocket motors do exist. These are:

Mil - R - 25532A (USAF) General Specification

Mil - R - 25534A (USAF) Qualification Test

Mil - R - 25535A (USAF) Preliminary Flight Rating Test

Mil - R - 25536A (USAF) Acceptance Test.

These documents are all dated 6 April 1959 and all have an amendment I dated 26 June 1959. (U)

E. What are the wind environment limitations for launching and static conditions?

Ground wind limits are normally 20 knots steady with 30 knot gusts from any direction in the unsupported condition (gantry removed). Winds aloft are established as the 99 percent winter wind occurence profile for AMR. The data has been derived by Mr. N. Sissenwine at Cambridge Research Center and is readily available. (~~C~~)

Answers to Questions in III F, G and IV are all dependent on range procedures and should be received from these facilities. (U)

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SSZA Lt Col R.O. Smith, Jr/3047

New Test Philosophy Implementation,
By-pass of Vandenberg MAB Building

16 JUN 1961

Lockheed Aircraft Corporation
Missiles and Space Division
Post Office Box 504
Sunnyvale, California

1. With reference to LMSD letter 355235, dated 26 May 61, subject as above; SSD agrees that the term by-passing the MAB is a figure of speech indicating that detailed testing will not be accomplished at this point in the factory-to-launch sequence. Certain preparatory functions will take place in the MAB depending upon the payloads, the program, and conditions occurring during launch preparation.

2. The checks proposed on Vehicle 1110 are agreed to; however, in the Discoverer Program these additional checks should soon be eliminated. In the MIDAS and SAMOS programs certain checks may become evident as flight experience dictates. These will be considered on their own merits.

ROY O. SMITH
Lt. Colonel, USAF

EDWARD F. ELLIS
Lt Colonel, USAF
Chief, Agena Office

Copy to: AFPR (LMSD)
6565 TW (Dev) VAFB

OFFICE SYMBOL	ORIGINATOR SSZA/amt	SSZ-D	SSZME	SSZAC-1	SAFSP
NAME (SIGNATURE)	Smith				Quinn
DATE	13 June 61	14 June 61	14 June 61	14 June 61	16 June 61

Coord by phone.

AFBMD Form 11
1 Nov 59

COORDINATION SHEET

Replaces AFBMD Form 11, 1 Jun 59

AIR FORCE (DPS, Ogden, Utah

R&D 4/99

201

24 JUL 1961

SSZA/Lt Col R. O. Smith, Jr/3047

Discoverer EJA Approval Procedures

All SSZA Subsystem Personnel

1. A new procedure regarding acceptance of vehicles and approval of post-acceptance EJA's for the Discoverer Program is outlined for the guidance of all SSZA personnel.

2. The technical acceptance team chairman will normally be Lt Colonel Worthington or Lt Colonel Nelsen. These individuals will request assistance from SSZA at technical acceptance meetings. This will normally be in the form of representatives from Subsystem C and Subsystem D; on occasions, other subsystem representatives may be asked to attend. The chairman will coordinate the meeting with the AFPR (Mr. Chamberlain), payload representatives (Mr. Letterman - GED, Capt Glassmeyer - Vela Hotel) and 6565 Test Wing (Capt Lofstad) as required.

3. Completed but "Non Air Force Approved EJA's" on the Discoverer vehicles that have received DD 250 action will be routed to SSZD. Approval will be forwarded by SSZD to the LMSC program office through the LMSC coordination staff, with an information copy going to the 6565 Test Wing.

4. EJA's of a more urgent nature that are requested by telephone will not be given tentative approval. The information may be accepted but it will be forwarded to Lt Colonel Worthington or Lt Colonel Nelsen (or in their absence Capt Sleeck or Capt Saltzell) with your recommendations. This condition should last for only a short time. It is planned that shortly all requests for approval will be directed to SSZD. They in turn will secure engineering assistance from SSZA as required.

SIGNED

EDWARD P. BLUM
Lt Colonel, USAF
Chief, Agena Office

Copies to:
SSZE SSZN
SSZD Dr. Moen (LMSC)
SSZAA Mr. Varner (GE C)
SSZAS Mr. Gray (LMSC)

OFFICE SYMBOL	ORIGINATOR SSZA/amt	SSZD			
NAME (SIGNATURE)					
DATE	21 July 61				

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~~CONFIDENTIAL~~

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~~SECRET~~

RECD

AFBMD
ACTION ~~SSZHV~~ SSZD

1961 AUG -9 PM 2:06

INFO SSZE

BSRV

file
AF673
Amend 17
file
AB

HQA024
PP RJWZBK
DE RJEZHQ 448
P 092008Z 9 AUG 1961 20 28
FM SAFS WASH D C
TO RJWZBK/SSD INGLEWOOD CALIF
INFO RJEZFF/AFSC NDREWS AFB MD
RJWZBK/DCAS LOS ANGELES CALIF
BT

~~S E C R E T~~ FROM SAFS. 92454
SAFUS DIRECTS THAT YOU TAKE NECESSARY ACTIONS TO PROTECT LEAD TIME FOR THREE THOR/AGENA VEHICLE COMBINATIONS ADDITIONAL TO PRESENT OVERALL AUTHORIZATION. VEHICLES WILL NOT BE ASSIGNED OR PROJECTED AGAINST ANY SPECIFIC PROGRAM OR PROJECT AT THIS TIME.
SCP-3.
BT
09/2010Z AUG RJEZHQ

Desired launch dates
7 Aug 1962 ABS
1 Sept 1962

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

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[illegible] Laws, [illegible]
transmission or th[illegible] ~~of its contents in any~~
manner to an unauthorized person is prohibited ~~by law~~

~~DOWNGRADED AT 12 YEAR~~
~~INTERVALS; NOT AUTOMATICALLY~~
~~DECLASSIFIED. DOD DIR 5200.10~~

Control # SSZDK-30

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO ATTN OF: SSZNZ/Lt Craft/OS 5-0351 Ext 76

AUG 9 1961

SUBJECT: Historical Summary, ARDC/AFSC Support of Army/Navy Space NASA Programs

TO: SSE (Dr. Rockefeller)

1. Reference SSE letter dated 2 August 1961, subject as above.

2. In support of the Geneva negotiation, ARPA was directed to initiate a space based nuclear detonation detection system.

a. On 22 June 1961, ARPA funded a five launch ATLAS D/AGENA B program, each launch to place two spacecraft into 50,000 nautical mile orbits.

b. The Air Force is providing management of all phases of the program with the AEC providing detectors, logics and data analysis.

c. Launches will be from AMR using existing Air Force equipment as required.

d. The Air Force will supply approximately 25 project personnel at SSD as well as support personnel.

e. Upon approval of the high altitude program, ARPA funded the VELA HOTEL program 2.5 million in FY61 in addition to the 1.14 million for prior years. An additional 57.8 million is scheduled through FY65.

f. USAF has furnished no funds for this program.

g. All indirect services provided by the USAF for the VELA HOTEL program are included in the ARPA funding, paragraph (2E) and SSD manpower, paragraph (2D).

h. None.

for Robert R. Anderson, Captain
WILLIAM C. KESTER
Major, USAF
Director, VELA HOTEL
Deputy for Satellite Systems

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO ATTN OF: SSVR/Maj Albert/OS 5-0351, 108 — 9 Aug 61

SUBJECT: Historical Summary, ARDC/AFSC Support of Army/Navy Space NASA Programs

TO: SSE (Dr Rockefeller)

1. Reference is made to SSE memorandum, subject as above, dated 2 Aug 61.

2. NASA has made arrangements with AFSC for the implementation of the launch vehicles portion of the NASA Agena B Program (Ranger Directorate). Management organization and procedures have been established which will:

a. Enable NASA to fulfill its responsibilities for achieving the basic missions of the NASA Agena B Program.

b. Enable NASA to insure that its technical, performance and operational requirements are fulfilled.

c. Permit NASA to take full advantage of the technical and operation background and experience developed by USAF in booster and space projects.

d. Permit contractors to discharge their contractual obligations with NASA and USAF utilizing already established management relationships insofar as practicable.

e. Provide NASA the benefits of contract administration services and procedures already established for USAF programs which employ the basic vehicles to be utilized in the NASA Agena B Program.

3. Payloads for this program will be furnished by either Jet Propulsion Laboratory or Goddard Space Flight Center. Over-all management authority for the NASA Agena B vehicle program resides with NASA Hq, Office of Launch Vehicle Programs and operating management responsibility and authority are vested in Marshall Space Flight Center. The tasks specifically assigned to SSD are as follows:

a. Responsibility for procurement together with logistic and management support to meet NASA Agena B launch schedules are assigned to USAF. SSD will be responsible for operational, administrative and technical support for NASA Agena B launch vehicles. This shall include personnel and facilities in support of launch operations.

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UPON REMOVAL OF ENCLOSURES.

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~~CONFIDENTIAL~~

b. At the Launch Base all direction to ~~controllers~~ CONTRACTORS will be made by the 6555th or the 6565th Test Wings. The Flight Test Working Group for the NASA Agena B launch operations will be chaired by an officer of the 6555th or 6565th Test Wings. This officer will also act in the role of Test Controller with control and authority of the entire vehicle and operations of the launch complex during launch operations.

4. Attached is a current schedule of the NASA Agena B program. This schedule includes launches from both AFMTC and Vandenberg AFB as well as both Atlas/Agena B and Thor/Agena B booster combinations. This office has been informed that this twenty vehicle schedule will be augmented to approximately thirty five launches in the very near future.

5. Fund estimates for the program are somewhat complicated by the fact that NASA currently has ordered twenty one first stages (nine Atlas and twelve Thor) and twelve Agena Bs. It is further complicated in that the Thor boosters are not being funded on an incremental basis. Current agreements provide that the Thor booster costs will be funded in the year in which the vehicle is launched. A third variable in the cost estimates is the complexity of the Agena/Spacecraft interface for downstream missions. With this preface the following fund estimates reflect the twenty flight program currently in the NASA Program Management Plan.

a.	Cumulative through FY 1961	$ 38.7 million
b.	Estimate FY 1962	43.2
c.	Estimate FY 1963	44.4
d.	Estimate FY 1964	16.242

6. NASA currently has under study further additional flights which might increase the program to approximately thirty five flights through calendar year 1964. Informal information received by this office indicates that NASA has budgeted the following amounts in anticipation of such a program increase:

a.	Estimate FY 1962	70.3 million
b.	Estimate FY 1963	100.9

7. There are presently seven officers assigned to this Directorate; however, Air Force support is obtained from many SSD organizations. A best estimate would be that an equivalent of twenty Air Force spend full time in support of this program.

JOHN G. ALBERT, Major, USAF
Director of Ranger (NASA Agena B)

1 Atch
Schedule - AMR & PMR (~~C~~)

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NASA AGENA B PROGRAM LAUNCH SCHEDULE AT AMR

STAND 12 - ATLAS FIRST STAGE

MISSION		CY 1961						CY 1962												CY 1963 QUARTERS			
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	1ST	2ND	3RD	4TH
RANGER #1	LUNAR TEST VEHICLE	▲																					
RANGER #2	LUNAR TEST VEHICLE				▲																		
RANGER #3	SOFT LUNAR IMPACT							▲															
RANGER #4	SOFT LUNAR IMPACT										▲												
RANGER #5	SOFT LUNAR IMPACT												▲										
EGO (S-49)	ECCENTRIC GEOPHYSICAL OBSERVATORY																			▲			
BACKUP																						▲	
OAO (S-18)	ORBITING ASTRONOMICAL OBSERVATORY																						▲

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[illegible] LAWS, TITLE 18 U.S.C. [illegible] THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

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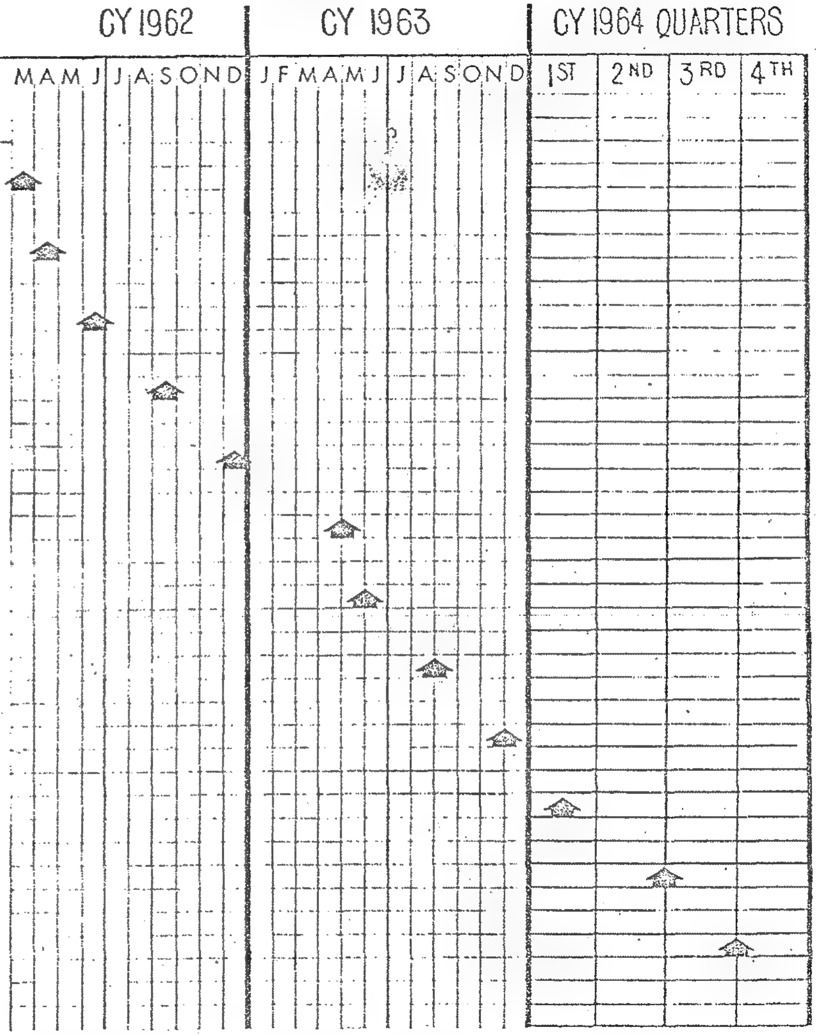
NASA AGENA B PROGRAM LAUNCH SCHEDULE AT PMR

MISSION		BOOSTER
S-27	TOPSIDE IONOSPHERIC SOUNDER	THOR
COMMUNICATIONS SATELLITE		THOR
NIMBUS A-4	METEOROLOGICAL SATELLITE	THOR
BACKUP		THOR
NIMBUS A-5	METEOROLOGICAL SATELLITE	THOR
COMMUNICATIONS SATELLITE		ATLAS
NIMBUS A-6	METEOROLOGICAL SATELLITE	THOR
OSO (S-16B)	ORBITING SOLAR OBSERVATORY	THOR
NIMBUS A-7	METEOROLOGICAL SATELLITE	THOR
POGO (S-50)	POLAR ORBIT GEOPHYSICAL OBSERVATORY	THOR
NIMBUS A8	METEOROLOGICAL SATELLITE	THOR
BACKUP		THOR



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103

AEROSPACE CORPORATION

OK

INTEROFFICE CORRESPONDENCE

NOT GO. 1910.1-42

TO: Colonel H. L. Evans

CC: A. F. Donovan
K. B. Swan
W. P. Targoff

DATE: 14 September 1961

SUBJECT: Standardizing the Agena

FROM: W. B. Brewer

We have had some recent discussions with members of the Space Systems Division concerning "standardizing" the Agena. This is a subject of great interest to us since there are often many well-known advantages to standardization, and also because the Agena is an important element in many of the projects on which we are currently assisting you. Further, it seems apparent that any variant of the Agena concept will play an important role in future, as yet undefined, space projects.

Because of these interests, we have conducted a brief technical review of the current Agena configurations and have done some thinking on the possible role of the Agena in future programs.

This study has confirmed the feeling that there could be, indeed, many benefits from a type of design cleanup and standardization. It certainly appears the propulsion equipment can be easily "standardized"; indeed, little variation exists in current configurations. The auxiliary power system, with some design cleanup, also seems to be easily standardized as long as flexibility is left for some choice, perhaps from a spectrum of sub-assemblies (batteries and solar arrays and eventually perhaps SNAP units). The structural portion of the Agena can well also use design review and be reasonably frozen, particularly if the skin thickness can vary for payloads of different weight, as we understand is the present intent.

Guidance and control equipment shows considerable variation at the present in the various Agenas. However, since certain portions of it have caused great difficulty (such as horizon sensors) this may be primarily an indication that more critical engineering cleanup or improvement is called for.

We do feel that three basic points bear watching:

1. One must be cautious that redesign (which may breed some new problems) goes no further than is justified by economic pay-off (including, of course, the aspects of reliability), as well as shortened time schedules, project interchange, etc. At least for the application we have been able to review, it appears to us that the current Ranger Agena is already close to "standard," and that the above risk can be minimized.

2. We do not feel one can now forecast configuration and aspect requirements for unknown programs three to five years away. Therefore, it is our feeling that no significant compromises should be made in a re-engineered Agena which compromises it as a thrust stage in favor of payload space in its basic volume.

   In other words, it will be most successful as a "standard" in use and life, if as yet undefined payloads are primarily carried on a simple interface on its nose.

3. Schedule is a serious worry. Very critical review must be made of the contractors' projections of milestones before any current major programs are permitted to depend solely on the proposed new Agena.

Because of our deep interest in this activity and the fact that many of Aerospace's current effective projects depend on the performance and timely delivery of Agenas, we desire to help on this standardization program to our fullest ability. We feel that we can be most helpful only if we can assume the General System Engineering Technical Direction role, while the standardized configuration which will fit the several program requirements is being developed. Therefore, we believe it is important that Aerospace undertake this role during the formative stages for standard Agena.

As the first step in this activity, we would quickly but thoroughly review the contractor study report which we understand is due this week.

Walter Brewer
W. B. Brewer

WBB:ck

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO ATTN OF: SSZ

18 September 1961

SUBJECT: Development and Utilization of the Agena D

TO: Chiefs of Offices through Branch Level

1. In June of this year, SSD entered into a study contract with LMSC for the purpose of determining preliminary design features of a standard Agena vehicle. The results of this study have recently been made available to SSD. These results have been judged sufficiently favorable toward achieving a standardized Agena vehicle as to cause adoption of the concept by the Air Force. Briefings on this concept have been made throughout this complex, to the Commander AFSC, to various offices within the Air Staff, and to the Under Secretary of the Air Force. The information and the concept was favorably received at all levels within the Air Force and SSD has been instructed to implement the standard Agena concept.

2. As a matter of policy, it is intended that all Agena vehicles scheduled to be launched subsequent to January 1963 will use the standardized Agena which has been given the designation of Agena D. SSD has been directed to proceed on CPFF contract with LMSC to engineer and produce the Agena D. We are further instructed that a fixed price type contract will be written with LMSC as soon as data for such a proposal and negotiation are available.

3. The Agena D development will be managed by the Agena office (SSZA). Results of the preliminary design study are available through that office and it is anticipated that additional detailed information relative to performance and interface design will be forthcoming within the next thirty to forty five days. Your known technical mission requirements which could affect the basic vehicle design or the selection of the Agena D components, should be made known to the Agena office immediately so that they can be considered during this design period.

4. It is mandatory that all programs requiring the Agena vehicle make their numerical requirements known for calendar year 1963 to the Agena office at the earliest possible date.

Harry L. Evans
HARRY L. EVANS
Colonel, USAF
Deputy for Satellite Systems

A-3

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18 SEP 1961

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SSZ

Standardized Agena

Aerospace Corporation (Mr Brewer)

1. This is in response to your letter dated 14 September 1961. I appreciate the interest which Aerospace has shown in standardizing the Agena vehicle. As our conversation on 14 September disclosed, the concept of a standard Agena vehicle, together with its preliminary design, has been completed. As the attached memorandum points out, the briefings have been conducted to all levels of the Air Force with resultant approval of the concept and SSD is proceeding with the detailed engineering required.

2. In regard to the three basic points mentioned in your letter, we certainly concur with these points and while I feel the Agena office has already considered these points in detail, I am providing a copy of your letter to Colonel Blum for his further consideration. I appreciate your offer to help on the standardized Agena program. I regret that you feel you can be helpful only if Aerospace assumes the General System Engineering Technical Direction role; it is not the intent of SSD that this be an Aerospace responsibility.

3. There is obviously a need for your participation and I believe that it is desirable to have a focal point for Agena technical matters within the Aerospace Corporation. A small office of one or two individuals within the Aerospace Corporation could provide a focal point for Aerospace program offices to obtain detailed information on the various configurations of the Agena now in existence as well as the Agena D vehicle and could be used for technical assistance to the Air Force on some specialized occasions. I believe this has previously been suggested to the Aerospace Corporation in a letter from General Ritland to Dr Getting dated 14 September, "Aerospace Role in SAMOS, MIDAS, and DISCOVERER projects. I should be happy to discuss this with you further if you have any comments.

SIGNED
HARRY L. EVANS
Colonel, USAF
Deputy for Satellite Systems

Z-3274

1 Atch
SSZ Memo, Development of Agena D
see underdate 18 Sep 61

SSZ Evans aem
15 Sept 61

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DECLASSIFIED AF[illegible]
DOD DIR [illegible]

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Oct 4 1961

See Atts 3 & 6 at 26
AFSS

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MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE AIR FORCE
(RESEARCH AND DEVELOPMENT)

SUBJECT: Standardized AGENA

I have had two conversations since the briefing and our discussions October 3 relative to a program to develop a standardized AGENA vehicle. One of these was with Dr. Charyk and the other was a long meeting with Dr. Sterling Livingston and two of his associates, Messrs. Fox and Mathews, from Management Control Systems, Inc., an activity which along with Harbridge House is furnishing management services to the DoD. We have reached the following conclusions:

1. The idea of a standardized AGENA as presented in the Air Force briefing of October 3 is certainly attractive. If it can be done with a reasonable expenditure of effort and funds, it seems very likely that it would prove to be economically and functionally warranted over the long pull, based upon our current assessment of space program requirements.

2. Accordingly, this office approves the undertaking of a first phase effort which will be aimed at establishing, with considerably greater confidence, the feasibility of accomplishing what is claimed, and establishing organizational and procedural mechanisms for better insuring that we achieve the desired results in accordance with plan.

3. The Phase I effort that I contemplate may to a certain extent already be underway, judging from what Dr. Charyk told me. It should have the following characteristics and objectives which I believe reflect the sum of our discussions on the subject:

a. First, the contractor should be required to formulate a preliminary design of the standardized vehicle. This should be accomplished in approximately sixty days. It should be sufficiently comprehensive and complete so that we can be sure

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[illegible] estimates for the subsequent development [illegible] are based on solid foundation;

2. That a lot of important changes will not be necessary or contemplated as we more carefully define program content and [illegible]

3. That we are really buying a wanted development that does in fact represent standardization, including the compatibility of the vehicle with TITAN II boosters, with a variety of payloads and for numerous mission applications.

b. At the end of this preliminary design effort we should be able to review in report form, not in briefing form, a set of drawings, specifications and descriptive documents (including parts lists, for example) which could be subjected to the critical review of a knowledgeable group of independent technical appraisers. The documents I am thinking of would be a normal, logical and necessary part of the over-all design process. If they have not been generated, there is no point of putting more designers to work on an expanded scale. If they have been generated, they can serve as a basis both for assessing the adequacy of the design and as a basis for proceeding with it within the contractor's organization.

c. In addition to this important preliminary design effort during Phase I, arrangements should be specified for the on-going management of the program in considerable detail. Among the items that are of great importance are:

(1) How well is the contractor organized for this job? Will it be mixed in with everything else he is doing? If so, that is likely to be unsatisfactory. Is he prepared to establish a project organization with very little dependence on functionally organized groups within his plant? If so, the prospects for good management and control will be [illegible]. The contractor's ability and intentions in this regard should be specified in detail, including a description of the assignment of key personnel and the impact of this job on other work.

(2) I can think of no reason for not introducing PERT techniques for project estimating and control for both dollars and schedules in accomplishing this job. The Phase I period should also include arrangements for establishing this system.

(3) The PERT system is no better than the raw data which serves as input and the adequacy with which the output is suitable for use and actually utilized by components, by project and by upper level USAF and

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

OCT 9 1961

REPLY TO ATTN OF: SSZDK/Wiehoff/2053

SUBJECT: Authorization for Type of Contract

TO: SSKK

1. The subject procurement is for the necessary Thor/Agena satellite vehicles, ground support equipment, ground handling equipment and spare parts required to support five (5) additional launches in the Thor/Agena (DISCOVERER) program at an estimated cost of $11,300,000.

2. It is proposed to enter into negotiations with Lockheed Aircraft Corporation, Missiles and Space Company, Sunnyvale, California to the end that a contract suitable to the procurement will be effected.

3. A Determinations and Findings, as attached, is requested in accordance with AFPI 3.303 (c).

[redacted]

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Contracting Officer

1 Atch
D. and F. a/s

Approval Recommen
Bst

approval Recomme
Marker
Capt USAF
SSKP 10 Oct 61

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ASSISTANT SECRETARY OF DEFENSE
WASHINGTON 25, D. C.

DEPUTY DIRECTOR OF
DEFENSE RESEARCH AND ENGINEERING

OCT 13 1961

MEMORANDUM FOR The Assistant Secretary of the Air Force
(Research and Development)

SUBJECT: TITAN III Launch Vehicle Family

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References (a): Ltr to Vice President fm Administrator NASA and SecDef, w/encl subj: "Recommendations for Our National Space Program: Changes, Policies, Goals" dtd 8 May 1961 ~~(Secret)~~

(b): DDDR&E memo for UnSecAF, subj: Request for USAF Studies Relative to Space Programs dtd May 15, 1961 ~~(Secret)~~

(c): IDA Technical Report No. 61-8 subj: Study of Standardized Spacecraft and Launch Vehicles dtd June 1961 ~~(Secret)~~

(d): Report of USAF Studies Relative to Space Programs (undated) ~~(Secret)~~

(e): ASD(DDDR&E) and AsstSecAF(R&D) memo for Members, Ad Hoc Committee for Standardized Workhorse Launch Vehicle Selection, subj: Terms of Reference dtd August 1, 1961 (Unclas)

(f): ASD(DDDR&E) memo for AsstSecAF(R&D), subj: Request for Studies of TITAN II as a Standardized Space Launch Vehicle dtd September 15, 1961 ~~(Secret)~~

(g): Request of ASD(DDDR&E) to the LLVPG to review The Standardized Workhorse Report review early Sep.

(h): Review and Briefing by AF of TITAN III System Analysis and Proposed Program [illegible] ASD(DDDR&E) on October 10, 1961 ~~(Secret)~~

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DECLASSIFIED AFTER 12 YEA

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(i): AF memo for the Record, subj: Action Required to Protect TITAN III Schedule (Work Copy) dtd 11 October 1961 ~~(Secret)~~

(j): ASD(DDDR&E) memo for AsstSecAF(R&D), subj: Standardized AGENA, dtd October 4, 1961 ~~(Secret)~~

1. It is the purpose of this memorandum to set in motion on an expedited basis the actions necessary to move rapidly into a Phase I effort which may lead to the development of a family of launch vehicles based on the TITAN III along the lines outlined in references (h) and (i). This memorandum represents an interim step which links the documents referenced above to subsequent documents which have not yet been completed, and which will be needed for full definitization and authorization.

2. The briefing of reference (h) and the report that goes with it entitled "TITAN III Standardized Space Launch Vehicle" provides an excellent basis for going forward now with numerous actions recommended by the Air Force. In reference (i), Air Force representatives put together a summary of the principal funding requirements, contractual arrangements and efforts by the Air Force and by contractors needed to get going on a "Phase I" effort. Although reference (i) is a working paper and not an official document, I consider it an excellent basis for moving ahead. It reflects an understanding shared both by this office and by representatives of your office and other Air Force elements. If the subsequent actions inaugurating Phase I are essentially consistent with reference (i), they will be approved by this office when your request for approval is received.

3. The Phase I effort contemplated for this program corresponds in principle with the Phase I effort contemplated for the standardized AGENA outlined in Reference (j). During the Phase I period, the principal preliminary design efforts needed to solidify understanding and to define the scope of the undertaking with much greater accuracy will be required. At the end of the Phase I period the principal areas of technical risk should be identifiable and the undertakings necessary to give a high confidence of success should be laid out. It should be possible to specify what is wanted with considerable precision. It should be possible to specify what is not wanted with considerable precision. It should be possible to estimate the scope of the program with improved accuracy and confidence. It should be possible to define

a set of development principles and objectives that will not change during the life of the program so that continuity and focused effort may be assured. If these and other conditions can be met, we may proceed with the development effort. If they cannot be, we will terminate our efforts at the end of the Phase I period.

4. In addition to technical matters, it is equally important to design and to arrange for the establishment of the appropriate management mechanisms. Many of these are contemplated in reference (i).

5. The Phase I period contemplated for this program will terminate on about 1 February 1962, although this date does not have to be absolutely firm. It will, of course, involve substantial expenditures. These should be aimed, as I believe your planning contemplates, at protecting the overall schedules which will be desired if the project is undertaken, without committing us to the project in the event that the Phase I efforts are not fully successful in resolving the technical and managerial matters satisfactorily. With respect to the latter, the following points would appear to be of particular importance:

a. The Air Force should establish a strong project organization for this job and responsibility for the TITAN III, the solid engine developments and all the associated items unique to this program including AGE, launch facilities, etc., should fall under the authority of that office.

b. It is recognized that the interface problems in this undertaking will be formidable. The TITAN II/TITAN III interface is one. The AGENA/TITAN III interface is another. The solid engine development program will likewise have interfaces. The tendency that might arise to create a project office that was authorized to do little more than coordinate these interfaces would not, in my opinion, prove adequately effective.

c. Similar interfaces will exist at Martin and in some of the engine companies. It will be vital to establish during this Phase I period company organizations subject to specific Air Force approval for handling this job. Strong centralized project-type organizations must be insisted upon for all major elements, especially the TITAN III and the associated solids.

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d. The appropriate management systems such as PERT, accounting centers, accounting and auditing practices, should also be set up during this Phase I period. Contractors both willing and able to establish, to maintain, and to utilize the appropriate procedures should be selected as candidates for proceeding with the approved development.

e. The adequacy of these and other management mechanisms will be a major consideration in granting and withholding project approval following Phase I.

6. The services of Dr. Livingston's management consultants are available to you on an on-call basis. I recommend that you utilize them to work directly with the responsible Air Force officers and the major contractors in laying out the Phase I management plans as outlined above.

7. It is my understanding that the Air Force has already developed a PERT network for the decision-making part and the administrative part of the program efforts that have to be taken between now and the end of the Phase I period. I intend to establish a complimentary overall PERT analysis which will include all OSD echelons into which the Air Force network will be integrated. This effort will commence very shortly.

8. This memorandum may be considered your approval to begin the early actions consistent with the forgoing discussions in the context of references (h) and (i). You will need specific authorization for the release of funds against a suitable descriptive document. I will transmit the appropriate request to the OSD Comptroller as soon as your submittals are transmitted to this office.

9. The excellent work and cooperation of your staff and all Air Force elements that have been involved over a period of many months is very much appreciated.

John H Rubel

John H. Rubel

cc: Dr. Seamans, NASA

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

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HEADQUARTERS
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Andrews Air Force Base
Washington 25, D.C.

Subsequent to 13 Oct 61
Prior to 19 Oct 61

REPLY TO ATTN OF: SCGN

SUBJECT: Standardized AGENA and TITAN III

TO: Commander SSD
AF Unit Post Office
Los Angeles 45, Calif

1. Attached are two copies of memorandums prepared by the Assistant Secretary of Defense, Mr. Rubel, on the standardized AGENA and the TITAN III launch vehicle family. While these copies have not been officially transmitted to this Command, they are being forwarded to you so that preliminary work can be undertaken immediately to initiate Phase I as outlined in both memorandums.

2. A meeting is being set up with Dr. McMillan on the 19th of October which you should plan to attend to discuss actions which should be taken by the Air Force in getting both of these programs approved and under way. I presently plan to attend myself and General Holzapple will represent the Air Staff at this meeting.

3. Although it is anticipated that this Command will not receive detailed instructions on the above programs until after the Thursday meeting, it is requested that you use the attached memorandums as a basis for getting certain work under way as I am in general agreement with the courses of action proposed by Mr. Rubel

B. A. Schriever

2 Atchs
1 Cy DDR&E memo for Asst Secy of the AF(R&D), 13 Oct 61, subj: TITAN III Launch Vehicle Family (~~C~~) (2 cys) — see under date
2 Cy DDR&E memo for Asst Secy of the AF(R&D), 4 Oct 61, subj: Standardized AGENA (~~C~~) (2 cys)

cc: Deputy Commander, Aerospace Systems

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.

61-107691

~~CONFIDENTIAL~~

#30

REC'D

AFBMD

ACTION SSZK

INFO

19 OCT 1961 . 01 19

1961 OCT 17 PM 5:31

WUP
TWX SATL 73 LMSC SUNNYVALE CALIF 10-17-61
SSD
INGLEWOOD CALIF

UNCLAS FROM RWRMP-17-10-19-E. SSD FOR SSZDK W.G.WIEHOFF
INFO CPY TO SSZKR LT COL STEINER.

REFERENCE YOUR MESSAGE SSZDK 9-10-1 DATED 9 OCT 61 SUBJECT. REQUEST FOR COMPLETE FCR. SERIAL NO. RWRMP 61-10-2 APPLIES. THE FOLLOWING INFORMATION IS SUBMITTED IN ACCORDANCW WITH AFPI 52-108.

ANSWER TO QUESTION ONE -YES
ANSWER TO QUESTION TWO -YES
ANSWER TO QUESTION THREE -YES
ANSWER TO QUESTION FOUR /TO BE DETERMINED AT THE TIME OF MAKE OF BUY EXHIBIT NEGOTIATION/
ANSWERTO QUESTION FIVE -YES

THIS FCR IS BASED UPON THE FOLLOWING CONDITIONS

1. VEHICLE DD 250 DATE WILL BE THIRTY DAYS PRIOR TO THE LAUNCH SCHEDULE OUTLINED IN MESSAGE SSZDK 9-10-1. Concur Pdw

2. VEHICLES SERIAL NUMBERS 1132 THRU 1136 WILL BE BUILT TO THE SAME CONFIGURATION AS VEHICLES SERIAL NUMBERS 1124 THRU 1131. affirmative

3. AUXILIARY PAYLOADS BECOME A SECONDARY REQUIREMENT DELIVERY OF VEHICLES SHOULD NOT BE DEPENDENTT UPON AVAILABILITY OF THESE PAYLOADS. Concur. Pdw

4. DD 250 DATES AND LAUNCH DATES FOR VEHICLES SERIAL NUMBERS 1124 THRU 1131 WILL BE ACCELERATED. affirmative

5. IT WILL BE NECESSARY TO OPERATE ON A TWO SHIFT SIX DAY WORK WEEK IN MANUFACTURING SYSTEMS TEST AND ENGINEERING A THIRD SHIFT WILL BE NECESSARYTO HELP OUT IN SOME AREAS. Concur Pdw

6. IT WILL BE NECESSARY FOR PREMIUM PAYMENT TO THE FOLLOWING SUBCONTRACTORS. Concur Pdw

A. BELL AEROSYSTEMS CO
B. MINNEAPOLIS HONEYWELL REGULATOR CO
C. ADVANCED TECHNOLOGICAL LABORATORIES
D. FAIRCHILD CAMERA AND INSTRUMENT CO

47848

MINNEAPOLIS HONEYWELL REGULATOR CO AND FAIRCHILD CAMERA AND INSTRUMENT CO. WILL ALSO REQUIRE ADDITIONAL CHECK OUT EQUIPMENT TO MEET THE ACCELERATION OF THEIR DELIVERY SCHEDULES.

7. TO MEET THE LAUNCH SCHEDULES (SSZK) WILL ASSUME THE RESPONSIBILITY OF PAD AVAILABILITY. AFPI FORM 634 RECORD OF FACILITY ADVISORY BOARD ACTION WILL FOLLOW. SSZD Pdw

OFFICE OF THE AF PLANT REPRESENTATIVE
LOCKHEED MISSILES & SPACE CO SUNNYVALE CALIF
325 PM JO

-673 S/A #6 270

24 Oct 61

~~FOR OFFICIAL USE ONLY~~

112

[illegible]

OCT 24 1961

see ltr 26 Oct 61

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MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE, [illegible]

SUBJECT: Standardized AGENA Program

1. In response to your memorandum of 4 October on the Standardized AGENA, I held a meeting in my office on 19 October with Mr. Sterling Livingston, General [illegible], General Ritland, and several members of the Air Staff, to discuss the organizational and managerial areas in which we may profitably employ the consultant services of Mr. Livingston and his associates. It would appear from Mr. Livingston's description of his current effort that his principal activities are far broader and more fundamental than is really appropriate for the AGENA project at this time. However, after considerable discussion, it developed that there may be several areas in which specific assistance can be rendered. We are anxious to be assured of [illegible] in our effort [illegible], due to the time limit of the [illegible] effort. We have, therefore, mutually agreed on several general rules and objectives.

a. A rather thorough description will be developed, during Phase I, of the organizational and management plan for the execution of the procurement program. Particular emphasis will be given to the control techniques and methods proposed for monitoring the contractor's progress. There will [illegible] during the Phase I period to establish [illegible] that the reporting and [illegible] are adequate. However, a [illegible] of [illegible] will be required.

[illegible] on the basis of engineering milestones and other [illegible]

[illegible]

~~FOR OFFICIAL USE ONLY~~

[illegible] from the [illegible]. We would of course describe to you [illegible] our planning interface [illegible] program is concerned.

[illegible] special ground rules, a meeting [illegible] Central [illegible] to begin [illegible] evaluation during the [illegible]

Brockway McMillan
Assistant Secretary
Research & Development

~~CONFIDENTIAL~~

Copy #4
24 pages
113

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A STUDY OF THE AGENA "D"

by the Johnson Committee

25 Oct. 1961

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

Prepared by:

Clarence L. Johnson
Clarence L. Johnson - Chairman

Dr. Abe M. Zarem

James A. Marsh
Dr. James A. Marsh

Major [illegible] C. Howard

~~CONFIDENTIAL~~

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INTRODUCTION

On October 17th, 1961, the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed the following committee to investigate certain aspects of the Agena Satellite Program:

Clarence L. Johnson, Chairman
Dr. Abe M. Zarem
Dr. James A. Marsh
Major Henry C. Howard

The verbal directive from Dr. Charyk to the group stated that under special urgency it should "investigate ways and means for improving the reliability of the Agena vehicle and recommend improved procedures for getting the standardized Agena D into earlier operation."

The Lockheed Missiles and Space Company at this date were proceeding on plans which would fly a "diagnostic vehicle" about February 1963. (See page 22 for the over-all development schedule.)

The committee (less Major Howard) met in Burbank, Calif., on October 18th to discuss methods of attacking the problem.

On October 19, 20, 23, 24 and 25, the whole group spent full time at the Lockheed Sunnyvale Plant, except for a trip to Vandenberg Air Force Base to become acquainted with operations and certain personnel there.

THE "STANDARD" AGENA - WHAT AND WHY

The so-called "standard" Agena has been conceived from the present Agena "B" aerodynamic form, to accomplish the following:

(a) Provide a redesign of the structure and equipment arrangement to improve greatly access to equipment and to obtain optimum cable and plumbing runs and better reliability.

(b) Make maximum use of proven Agena "B" equipment and payloads.

(c) Standardize the basic vehicle design to allow better integration of various payloads.

(d) Simplify checkout and pad problems.

(e) Provide interchangeability and a better tooling posture so that high rate production can be achieved -- nominally, five birds per month.

(f) Cost reduction ~~is provided~~ throughout the manufacturing, testing, launching and actual operation.

Some people contacted wanted to increase the diameter, thrust and fuel volume of the vehicle, but the committee rejected this approach in its study, because:

(a) Much effort has already been expended to design and mock up the present "Standardized" Agena (henceforth referred to as Agena "D").

(b) There is little or no gamble on the aerodynamic or structural changes going from the "B" to the "D" version.

(c) A major configuration change would jeopardize the desired operational date and cost of the "D".

(d) In the time period proposed in the original LMSC Agena "D" schedule (page 22) it should be possible to design and construct a prototype of a much more advanced article having better performance, more payload capability and other important desirable characteristics.

THE COMMITTEE'S MODE OF OPERATION

After being appointed and briefed, the committee proceeded to LMSC at Sunnyvale. Mr. Willis Hawkins discussed a few pertinent aspects of management organization at LMSC and their approach to the problems involved.

The chairman then proposed that the committee be permitted to call on various individuals at will, to talk to them privately or in groups on subjects of interest. LMSC agreed to this approach and were very cooperative and forthright in all regards, providing data and information of any and all types requested by the committee.

The committee preferred to work directly with people at the working level of LMSC and did so -- contacting over fifty individuals. LMSC was asked to prepare no formal briefings for the group.

A separate meeting was held with the AFPR (Col. Jim Voyles) and Air Force officers of the 6594th Test Wing, and a brief discussion took place with Lt. Col. Ed Blum, Agena Project Director, SSD.

After LMSC presented their original schedule for producing the Agena "D" (page 22), the committee proposed an alternate program (page 23), with a request to LMSC to study the plan, evaluate its problems and possibilities, and return with a list of necessary conditions which would have to obtain if the revised schedule was to be met.

An arbitrary 8 month program acceleration was proposed by the committee, compared to the original LMSC-AF schedule.

On the basis of the above, various factors affecting the program, such as engineering, planning, tooling, manufacturing, testing, etc., were discussed; the mockup was reviewed; and a trip was made to Vandenberg Air Force Base to witness the launch preparations there.

Several special meetings were held on the subject of reliability.

COMMENTS ON ENGINEERING

Present engineering work on the Agena is hamstrung by complex systems, multiple approval requirements, hordes of people and too many bosses. It was stated that some 2500 to 3000 drawings would be required to build the Agena "D". It was agreed by LMSC engineering personnel that if the only drawings made were those required to build and service the new Agena "D", the number would be reduced to 200 to 300. The committee proposed that a metal mock-up be constructed by December 25th, 1961, or sooner, and that it be used to prove cable runs, checkout boxes, etc. LMSC engineering and manufacturing people agreed to this date and procedure if simplified procedures could be instituted and a firm configuration approval be reached the first week of November 1961. This seems feasible to the committee, based on a mock-up review. (An Air Force group arrived to review it, also, the same day.)

PLANNING

The basic planning function seems to be based on standard spans and insufficient critical examination by competent management personnel. There seemed to be little pressure to improve launch dates of the Agena "D". For example, a 17-month span was planned for a mere redesign of the Agena "B". The first Agena was completely designed and flown in less than 11 months.

TOOLING

Tooling the Agena "D" is a simple task. However, LMSC has no major tooling capability. The committee proposed sending to Sunnyvale several tooling people trained in U-2 procedures, to set up a group and build all required tools close to the engineering and manufacturing groups of the Agena "D".

MANUFACTURING

The manufacturing head at LMSC stated that he could meet the schedule requirements of the accelerated Agena "D". He can work from the metal mock-up and, in a short time, reach a rate of five basic vehicles per month.

VENDOR PROBLEMS

Some discussions were held with LMSC personnel to determine what vendor problems exist today. Outside of quality control and reliability, no major problems exist. The average lead time for reordering unchanged equipment (similar to the Agena "B") varies from three to six months. A major step must be taken to do source inspection at many vendors' factories. They should be much more active inspecting hardware and processes, and not just generating paperwork.

TESTING PROBLEMS

System testing at Sunnyvale is plagued by atrocious accessibility problems, multitudes of changes from one vehicle to the next, and lack of sufficient spare parts. Often, to get a bird out, parts must be taken off one up the line, upsetting its reasonable progress considerably.

At Vandenberg, the committee was very favorably impressed with the LMSC operation. It does not seem likely that much time can be taken off the 21 days required to launch after receiving the bird.

The LMSC functional organization prevents the program director from having line authority over birds for which he is supposedly responsible -- i. e., the Discoverer Program Director has 186 people assigned to him, but 1200 people work on the program. A substantial portion of these 1200 are assigned to system test and manufacturing in separate divisions of LMSC.

RELIABILITY

There is general agreement that the over-all system reliability of the Discoverer program is between 30 to 40%. No substantial improvement is anticipated with the present configuration in the near future, although two approaches are in work or being considered.

These are:

(a) The Standard Agena "D", with its associated accessibility, maintainability, producibility features.

(b) Product Improvement Plan - Minor backup subsystems that can improve drastically the recovery reliability (i.e., auxiliary command, control, power, subsystems, etc.).

Both of the above programs must be pursued with dispatch. If implemented properly, a considerable improvement in Agena reliability can be obtained.

LMSC is an above average example of how a contractor in the defense industry attempts to implement a reliability program. The manner in which it functions in the organization (see organization chart) is hopelessly complex and can't possibly be effective. Adding reliability people in staff positions, all up and down the line, is not the answer. Reliability must be an intimate part of the "stock-in-trade" of each design engineer, each man in manufacturing and each of those testing and firing the missiles. The functions of reliability estimates, testing of parts, and establishing and maintaining lists of reliable parts can be done in a staff capacity. However, the line responsibility must be charged with proper parts applications and product analysis, including analyses of failures.

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It is almost impossible to understand how 1,000 people in Quality Assurance and 208 people in Reliability can be so ineffective.

It was discovered that the man who has the responsibility for reliability coordination with Space Systems also has the responsibility for sell off of the birds to the Air Force. He definitely has a conflict of interests.

Acceptance testing and evaluation of performance on most subsystems is being re-done at Lockheed. This is a very real source of unreliability. The most reliable subsystem that is subcontracted is SS/B, the engines. These are accepted entirely at the vendor's plant. Engineering quality assurance and liaison is effective in this case.

In contrast, there are two subsystems of a relatively complex nature that are taken apart and acceptance tested at LMSC -- the IRP unit, built by Minneapolis Honeywell, and the timer, built by Fairchild. Certainly, the vendor designing the equipment in each case is much more qualified and should be given the task of conducting these tests. LMSC engineering and quality assurance people should be resident in these plants to see what goes into these boxes during their manufacture, and to witness in detail all final testing, thereby making formal acceptance at the vendors' plants and taking particular care in handling and shipping. The cans should not be opened by LMSC but should be returned to the vendor for servicing. If additional spares are required to provide this procedure, they should be procured.

Accountability of partss and control by lot number is not employed on a low enough level.

The testing program does not have a model of the Agena to make some fundamental system checks to uncover reliability and performance data.

REQUIRED CONDITIONS WHICH MUST BE GRANTED LMSC TO MEET THE PROPOSED JUNE 1962 LAUNCH DATE

If LMSC is to implement the program outlined on page 24, the following conditions would have to be granted by the Air Force:

1. A DX priority should be assigned the Agena "D" program.

1. 2. The engineering system ~~should~~ will be similar to that of the U-2, requiring only enough drawings to tool, build and service the vehicles.

2. 3. An early and final configuration freeze is necessary.

3. 4. The engineers should be located in a secure area immediately adjacent to the tooling and manufacturing area.

4. 5. A rapid drawing release system (24 hours maximum) from the project engineer's approval to the manufacturing group is necessary.

will

5 6. Funding should be adequate and timely.

There will be no

6 7. Delete technical directive meetings involving large
There will be
groups. Have Air Force personnel working close enough with the LMSC project engineer so that formal meetings are not required. Keep Ex-
will be kept
traneous visitors away.

will

~~7.~~ 8. Reasonable overtime should be approved. In some cases, this may come after and not prior to its use.

will

8 9. Air Force approval of vendor selection ~~should~~ be furnished on the spot at Sunnyvale. When single source procurement is necessary, a short written record of why this was done must be kept on file.

will

9 10. Tooling should be of the simplest type that will give interchangeability, as stated in the basic Agena "D" specification. No tool drawings or outside approval of tooling should be required.

10 11. Interchangeability on the first four Agena "D's" will be limited to major structural and equipment items. Doors, for instance, may require trim to fit.

will

11 12. No engineering analysis reports should be required. The Air Fo
will use
~~Revert to the old system of~~ using the basic engineering reports, which furnish comparable data.

13. Another pad should be made available at Vandenberg (Pad #2 - Complex 75-1).

12 ~~14.~~ ~~The WSPO~~ The SSD project office and LMSC ~~should~~ will review the specification problem together and agree at the configuration conference to reduce the number of specifications involved to the minimum compatible with the Agena "D" mission. It ~~should~~ is also be noted that many items common with the Agena "B" will be used on the "D", and have already been qualified to existing specifications.

13 ~~15.~~ The Air Force Program Director ~~should~~ will be responsible for, and delegated authority for, all Agena "D" functions, including C&C flight hardware. No C&C T-D's ~~should~~ will be required.

SUMMARY AND CONCLUSIONS

This committee believes that:

1. The standard Agena "D" is a sound concept, which should be aggressively pursued.

2. An accelerated schedule for Agena "D" can be implemented so that a launch can be achieved by the summer of 1962 instead of Feb. 1963, and a production rate of 5 per month can be attained by Jan. 1963.

3. Reliability of Agena "B's" can be improved and the Agena "D" can have significantly better reliability. Specific recommendations are made in the remainder of this report.

4. A program is outlined in the report which, if implemented, should result in an improvement in efficiency and organization in the Space Systems Division of LMSC and in all of the LMSC satellite programs. Specifically, this program should significantly raise the probability of getting successful missions in calendar years 1962 and 1963, as well as benefiting other programs. Costs should also be reduced.

5. Special procedures would have to be provided within the Air Force to meet the accelerated schedule and instill confidence in the USER. These procedures will have to include some reorganization and aligning of functions.

6. LMSC would have to establish some single purpose engineering work-type operations that are approved by the Air Force and then not significantly changed with time.

7. There would be some temporary effect on all other Agena programs, but the degree, believed to be minor, could not be determined.

8. LMSC will have to appoint a strong program director, with direct line authority from program initiation through the remainder of the life of each bird.

9. Hand-picked people are required by LMSC for assignment to the Program Director for all facets of this program, including quality assurance and engineering people at the subcontractors' facilities.

RECOMMENDATIONS

1. The committee recommends that the Agena "D" be built on an expedited basis, described in this report.

2. A program leading to launching the first vehicle in June 1962 should be undertaken, with a production rate of five per month being obtained in January 1963.

3. In regards to the reliability of both the Agena "B" and "D", greater effort must be made by LMSC to obtain better designs, quality control, and basic inspection at the vendors' plants.

4. The spare parts provisioning should be liberalized to meet schedules and reliability.

5. Immediate consideration should be given to improving the over-all system reliability by use of redundancy. Particularly, two 400-cycle three-phase power supplies should be used in each Agena vehicle. Further, auxiliary command and auxiliary control systems should be included.

6. The committee recommends that the Agena WSPO, as well as the contractor, be made much more aware of the urgency of the over-all Agena program.

LIMITS OF THE COMMITTEE STUDIES

The committee did not include the following items in its study:

1. Problems of vulnerability on orbit.

2. The effect on costs or schedules of the proposed Agena "D" program.

3. Specific ability of all vendors to meet the proposed schedule. (This was done in generalities.)

4. Contractual aspects between the Air Force and LMSC or the other vendors involved.

5. Limits of the C&C facilities, pads, STC capabilities or booster production.

APPENDIX

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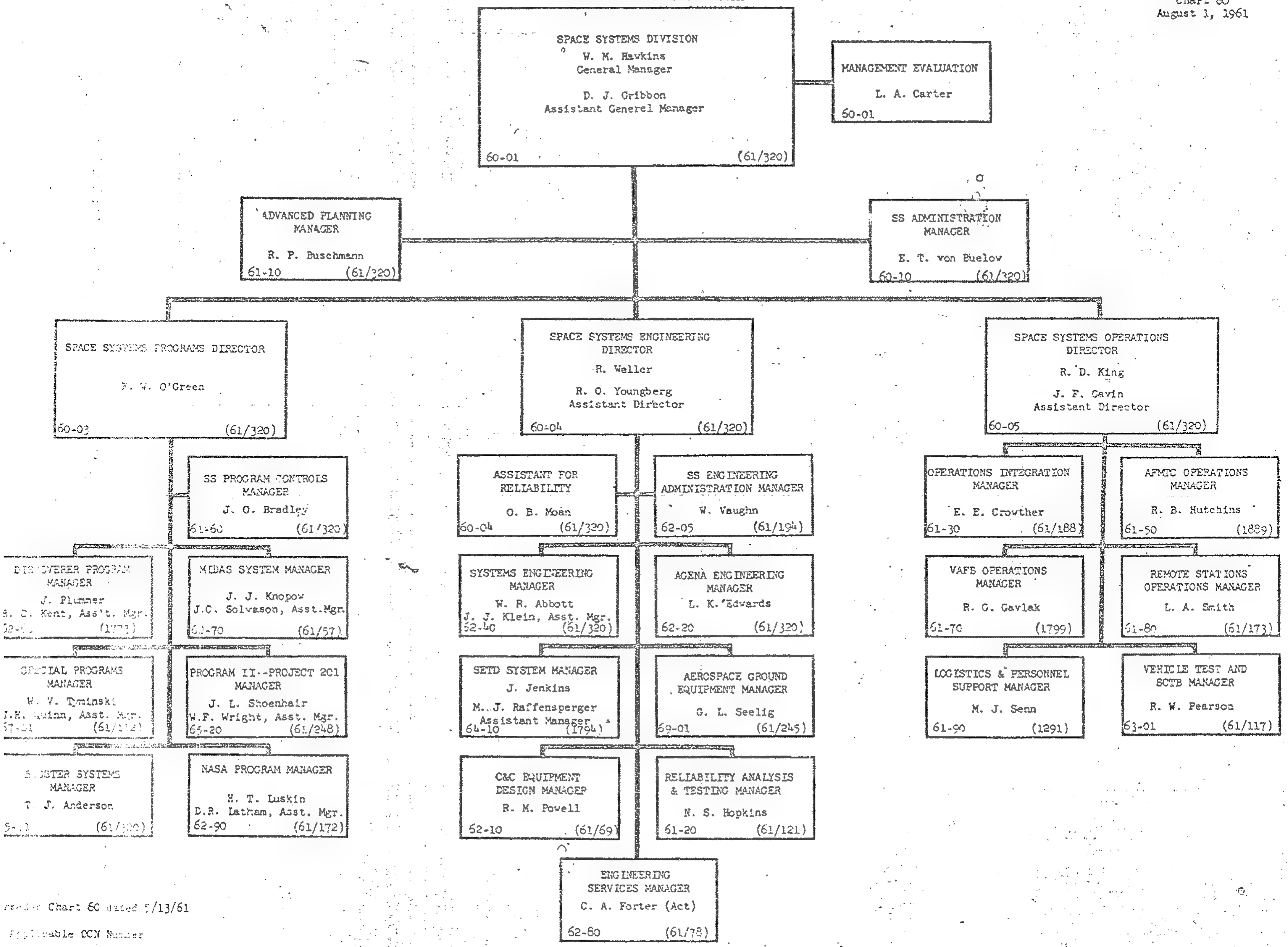
HEED MISSILES & SPACE COMPANY
Division of Lockheed Aircraft Corporation

SPACE SYSTEMS DIVISION

Chart 60
August 1, 1961

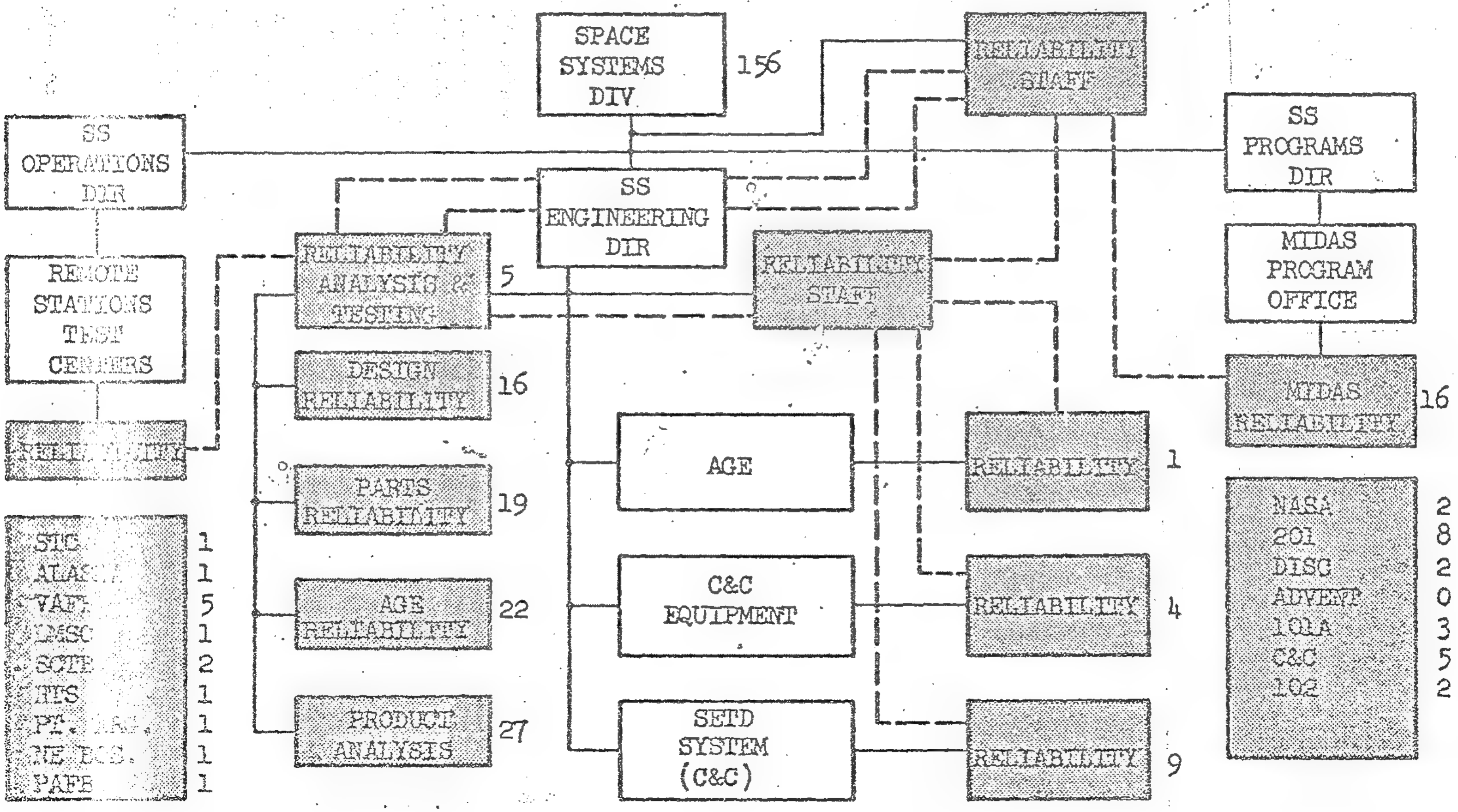
Reports to
L. E. Root, President, LMSC
E. J. Brown, Exec. Vice President


SPACE SYSTEMS DIVISION W. M. Hawkins General Manager D. J. Gribbon Assistant General Manager 60-01 (61/320)
MANAGEMENT EVALUATION L. A. Carter 60-01
ADVANCED PLANNING MANAGER R. P. Buschmann 61-10 (61/320)
SS ADMINISTRATION MANAGER E. T. von Buelow 60-10 (61/320)
SPACE SYSTEMS PROGRAMS DIRECTOR F. W. O'Green 60-03 (61/320)
SPACE SYSTEMS ENGINEERING DIRECTOR R. Weller R. O. Youngberg Assistant Director 60-04 (61/320)
SPACE SYSTEMS OPERATIONS DIRECTOR R. D. King J. F. Cavin Assistant Director 60-05 (61/320)
SS PROGRAM CONTROLS MANAGER J. O. Bradley 61-60 (61/320)
DISCOVERER PROGRAM MANAGER J. Plummer R. C. Kent, Ass't. Mgr. (1773)
MIDAS SYSTEM MANAGER J. J. Knopow J.C. Solvason, Asst.Mgr. 61-70 (61/57)
SPECIAL PROGRAMS MANAGER W. V. Tyminski J.H. Quinn, Asst. Mgr. (61/112)
PROGRAM II--PROJECT 201 MANAGER J. L. Shoenhair W.F. Wright, Asst. Mgr. 65-20 (61/248)
BOOSTER SYSTEMS MANAGER T. J. Anderson (61/320)
NASA PROGRAM MANAGER H. T. Luskin D.R. Latham, Asst. Mgr. 62-90 (61/172)
ASSISTANT FOR RELIABILITY O. B. Moan 60-04 (61/320)
SS ENGINEERING ADMINISTRATION MANAGER W. Vaughn 62-05 (61/194)
SYSTEMS ENGINEERING MANAGER W. R. Abbott J. J. Klein, Asst. Mgr. 62-40 (61/320)
AGENA ENGINEERING MANAGER L. K. Edwards 62-20 (61/320)
SETD SYSTEM MANAGER J. Jenkins M. J. Raffensperger Assistant Manager 64-10 (1794)
AEROSPACE GROUND EQUIPMENT MANAGER G. L. Seelig 69-01 (61/245)
C&C EQUIPMENT DESIGN MANAGER R. M. Powell 62-10 (61/69)
RELIABILITY ANALYSIS & TESTING MANAGER N. S. Hopkins 61-20 (61/121)
ENGINEERING SERVICES MANAGER C. A. Forter (Act) 62-80 (61/78)
OPERATIONS INTEGRATION MANAGER E. E. Crowther 61-30 (61/188)
AFMTC OPERATIONS MANAGER R. B. Hutchins 61-50 (1889)
VAFB OPERATIONS MANAGER R. G. Gavlak 61-70 (1799)
REMOTE STATIONS OPERATIONS MANAGER L. A. Smith 61-80 (61/173)
LOGISTICS & PERSONNEL SUPPORT MANAGER M. J. Senn 61-90 (1291)
VEHICLE TEST AND SCTB MANAGER R. W. Pearson 63-01 (61/117)

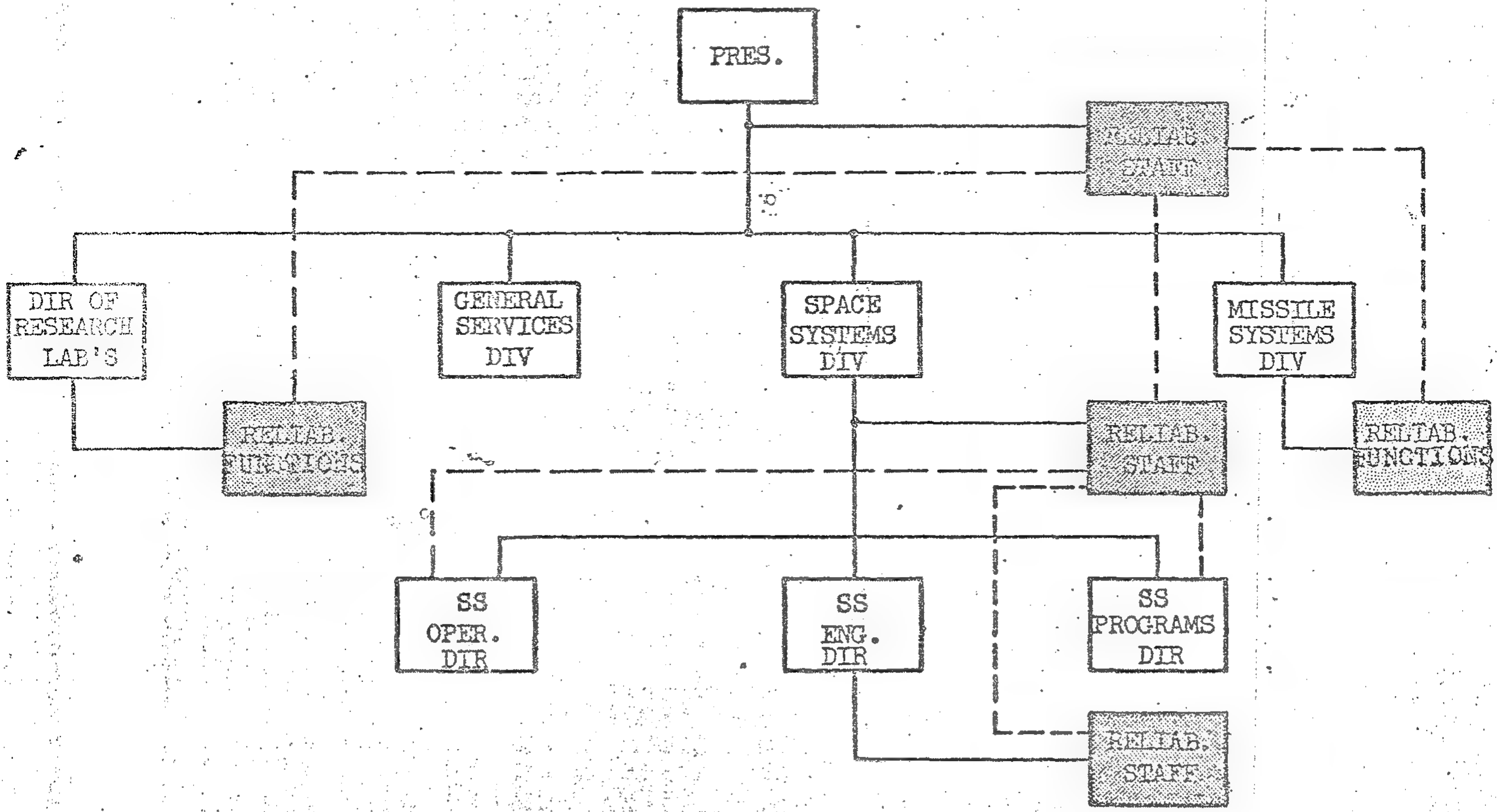
rsedes Chart 60 dated 5/13/61

pplicable OCN Number

SPACE SYSTEMS RELIABILITY STRUCTURE



SPACE SYSTEMS RELIABILITY STRUCTURE



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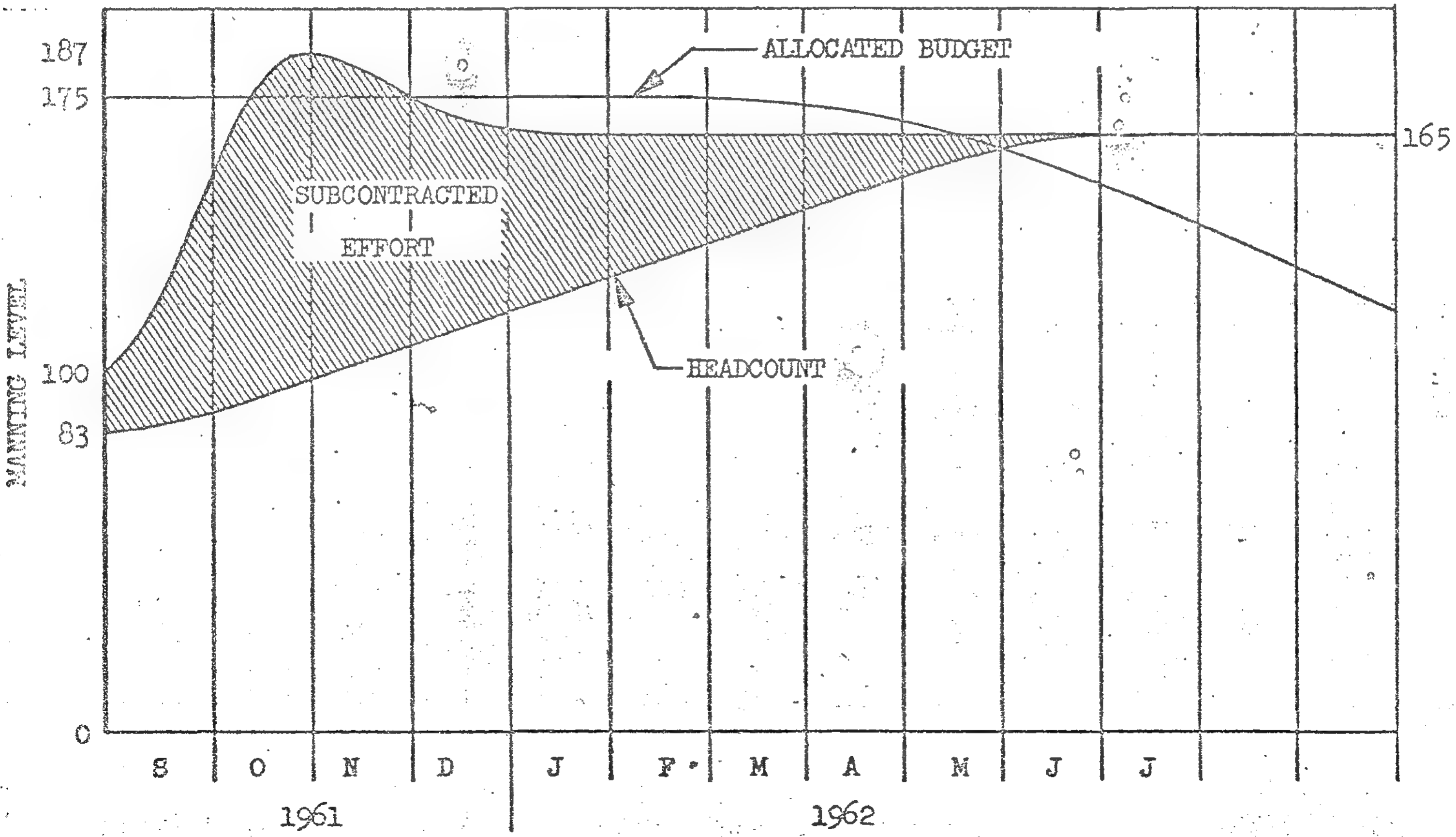
SS CENTRAL RELIABILITY MANPOWER



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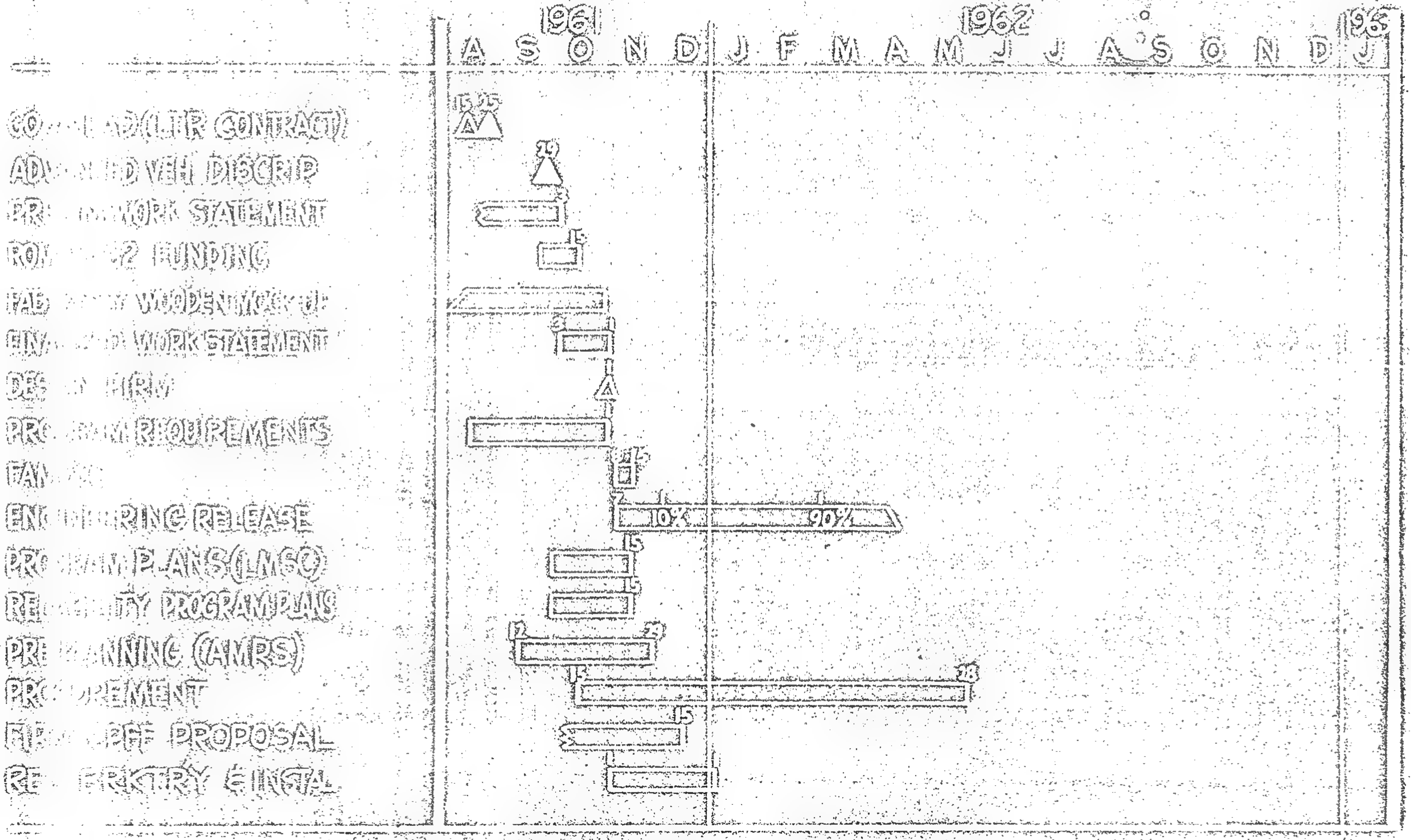
AGENA D PROGRAM MILESTONES



P ON 9/29/6

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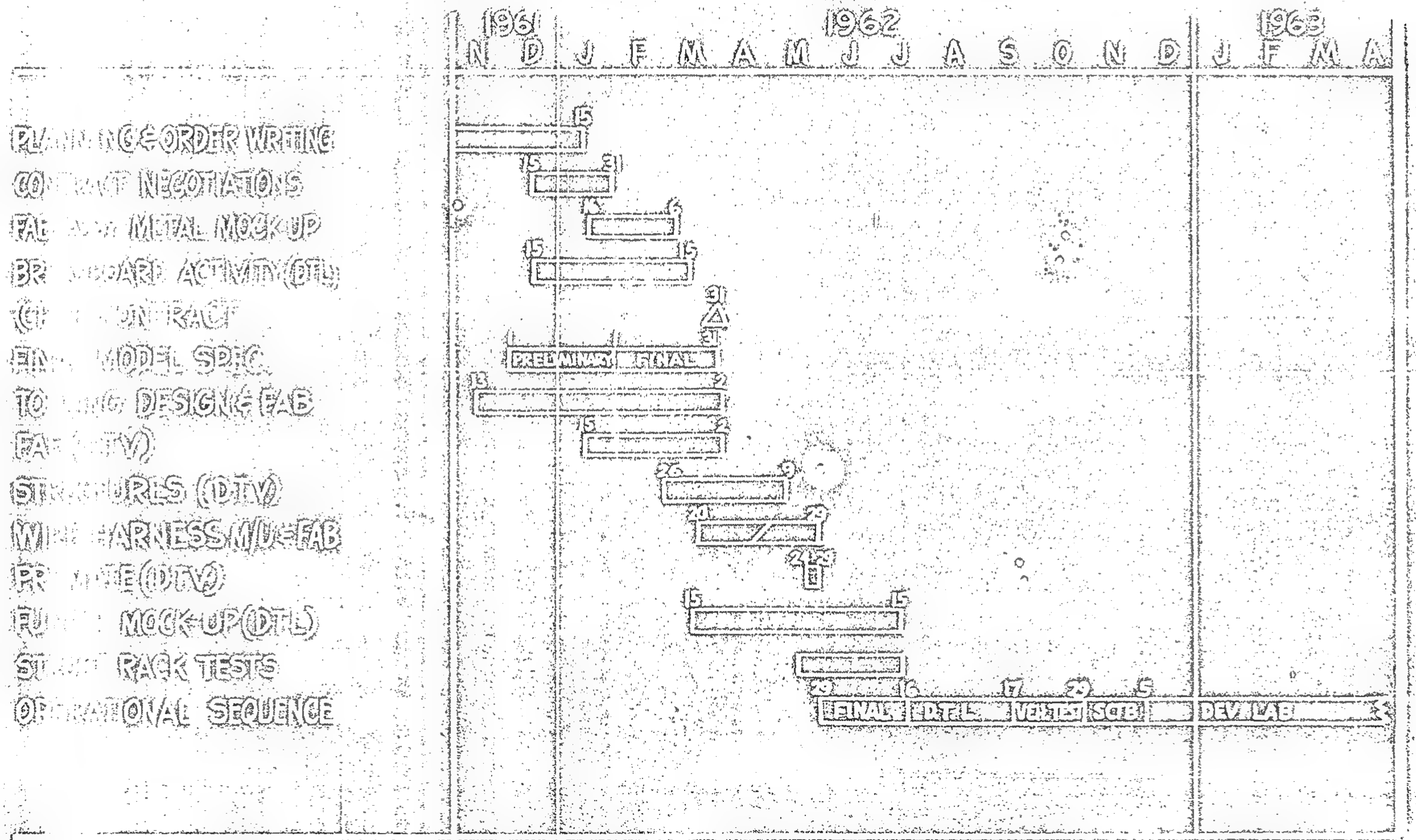
~~CONFIDENTIAL~~

AGENA D PROGRAM MILESTONES



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LM[illegible] [illegible] CY 51

~~CONFIDENTIAL~~

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.

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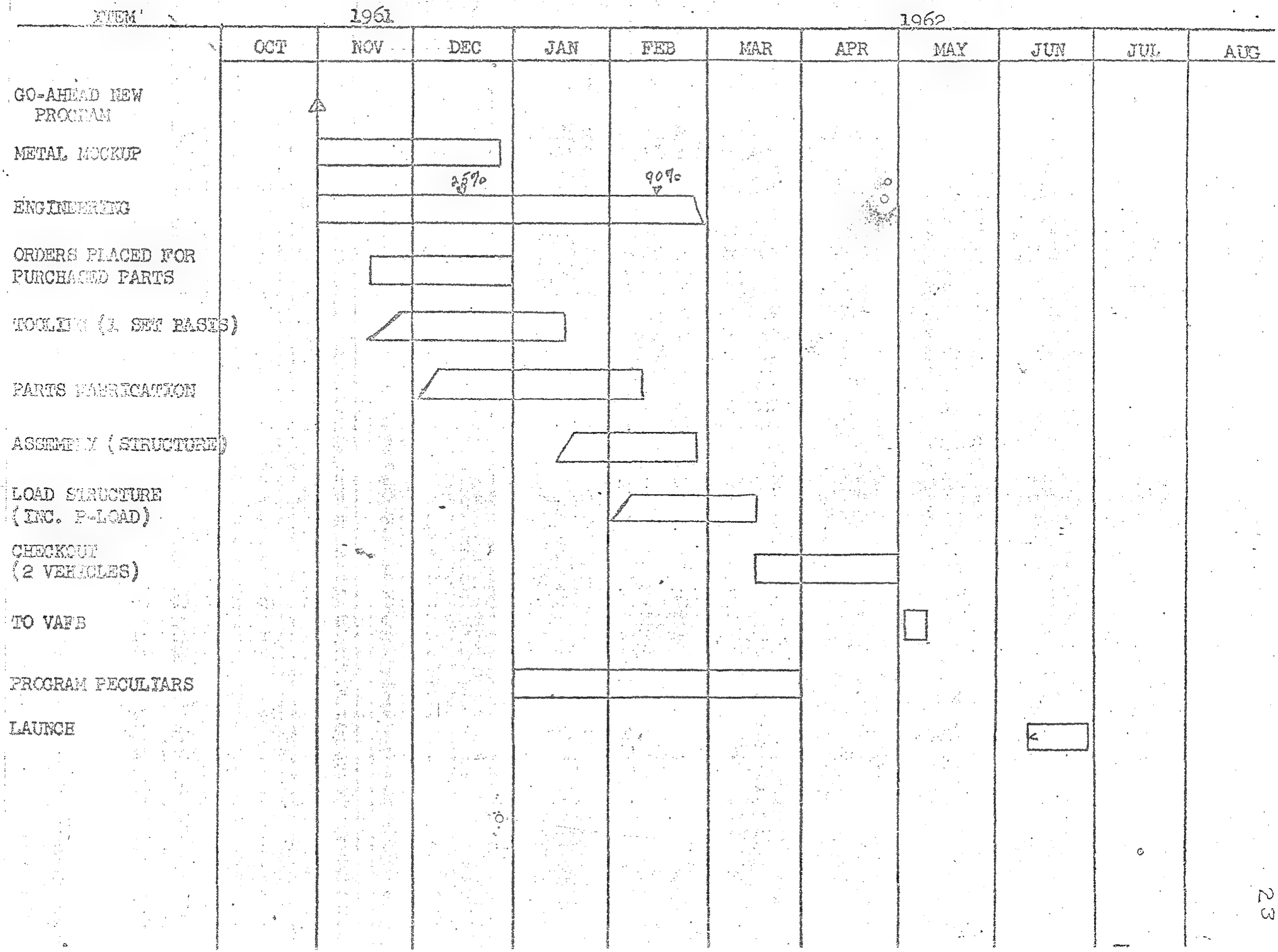
10-20-6

AGE[illegible]D
(S[illegible] WORKS APPROACH)



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~~CONFIDENTIAL~~

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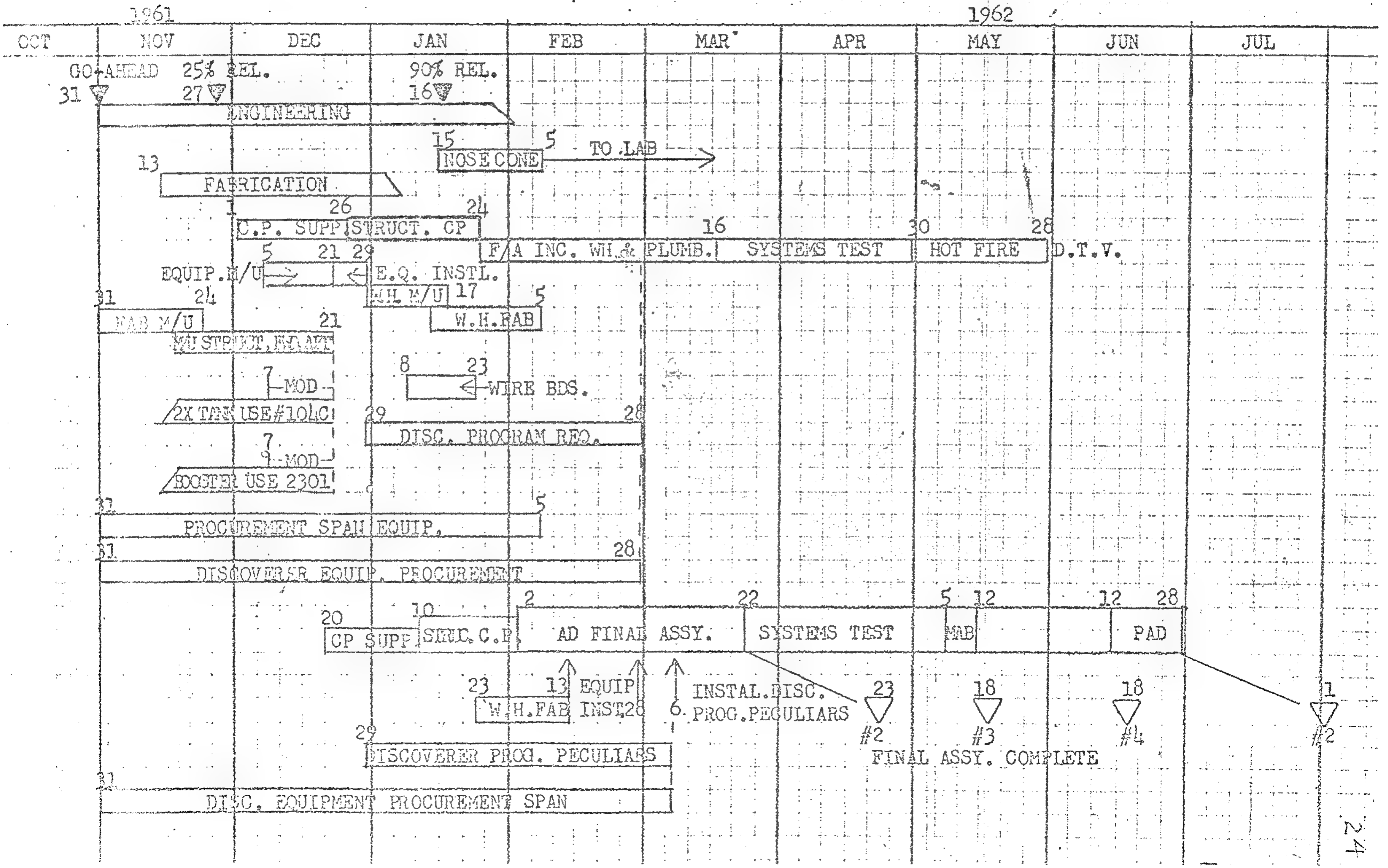
OFFICIAL OPERATING SCHEDULE (B)

DATE
PREPARED BY
APPROVED BY
PAGE

AGENA D ACCELERATION



24

Space Proj 1114

Active
SSZ Contracts

17 Oct 61

Contract No.	Description	Contractor	Est. Total Amt. (Millions)	Pr[illegible] Of[illegible]
AF04(647)-97	WS-117 Satellite Vehicles	LMSC	231.5	SSZ[illegible]
-269	Project SPURT	GE	.170	SSZL
-532	Ground & Vehicle-borne communications to support Space Programs (R&D)	Philco	* 57.9	SSZC
-558	Discoverer - 23 Satellite Vehicles	LMSC	97.7	SSZD
-563	Bioacoustic Measurement Experiment	LMSC	.125	SSZB
-564	Midas R&D and 2 Test Vehicles	LMSC	86.	SSZM
-566	Ground Communications for Space Programs at Vandenberg AFB	Kellogg	8.85	SSZC
-592	NASA/Agena - 9 Vehicles	LMSC	53.	SSZA
-595	R&D Ground & Vehicle-borne Communications to support Space Programs	LMSC	* 89.95	SSZC
-622	Gravity-Independent-Photosynthetic Gas Exchanger	Martin-Denver	.122	SSZB
-673	Discoverer - 21 Satellive Vehicles	LMSC	49.5	SSZD
-676	Supercritical Cryogenic Fluid Storage & Supply System	Garrett-AiResearch	.150	SSZB
-682	Project BIOTEL	NAA	.297	SSZB
-696	Advent/Agena - 8 Vehicles	LMSC	12.8	SSZA
-767	Saint	RCA	31.5	SSZI
-787	MIDAS R&D (follow-on to -564) 17 Vehicles	LMSC	190.	SSZM
-791	Advanced Biomedical Capsule	LMSC	1.	SSZA/ SSZB
-788	Satellite Control (follow-on to -595)	LMSC	80.	SSZC
-796	Pt Arguello Complex, Pads 3 and 4	LMSC	13.9	SSZA
-818	Ground Communications for Space Programs at Pt Arguello	[illegible]	[illegible]	[illegible]
-820	Saint/Agena (Study)	LMSC	* .115	SSZA

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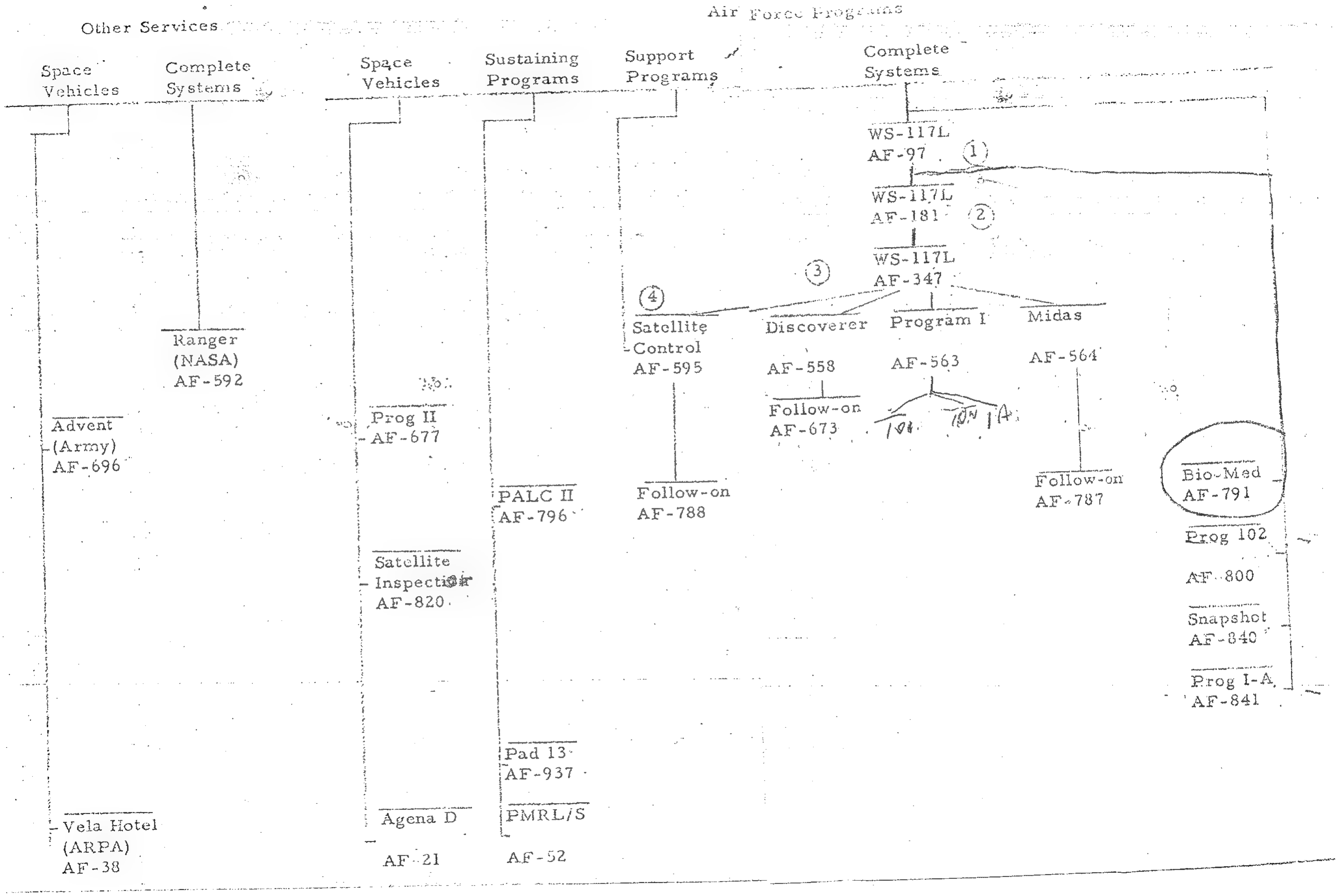
*Amount obligated to date. Total not negotiated.

Contract No.	Description	Contractor	Est. Total Amt.
AF04(647)-828	Tracking, Telemetry & Command Equipment at Tracking Stations in Support of Advent	Philco	13.
-829	Satellite Control R&D (Follow-on to -532)	Philco	60M
-840	Snapshot - Test Vehicles	LMSC	27.
-870	Arterial Blood Pressure Transducer	NAA	.70
-897	Cellulose Radiation Experiment	Electro-Optics	.10
-937	Conversion of Pad 13, AMR	LMSC	4.3
AF04(695)-3	Maintenance and Operation of Ground Communications at Vandenberg AFB and Pt Arguello	Kellogg	.360
-21	Standard Agena	LMSC	
-23	Radiation Shielding Experiment	LMSC	.120
-38	Vela Hotel (Agena) Studies	LMSC	16.55
-40	Computer Programming Integration for Satellite Control in support of DOD and NASA Space Programs	Systems Development Corp.	3.

The [illegible] funding information for Reliability was provided informally to SSPA by LMSC on [illegible] 1961. An official funding report has been promised to SSPA by Dr. O. B. Moan not [illegible] 25 October 1961. All reliability effort negotiated in the cited contracts, for example, [illegible] the payload, Agena B vehicle, materials research, parts effort, etc., is included in the [illegible] funding figures.

b. 3. RELIABILITY MANPOWER FUNDS

PROG		CONTRACT NUMBER	TOTAL FUNDING $1,000
Midas		-564	13,284
Midas		-787	22,655
101	101 B	-563	3,300
Disc	[illegible]	-552	485
Disc	[illegible]	-673	305
C &		-595	420
C &		-728	3,929
[illegible]		-592	150
[illegible]		-677	940
[illegible]		-696	164
[illegible]	[illegible]	-791	No Reliability Negotiated
[illegible]		-796	255
Proj	102	-800	No Reliability Negotiated
[illegible]		-820	No Reliability Negotiated
[illegible]		-840	No Reliability Negotiated
[illegible]		-841	No Reliability Negotiated
[illegible]		-927	No Reliability Negotiated
[illegible]	[illegible]	- 38	No Reliability Negotiated


Other Services
Space Vehicles
Complete Systems
Air Force Programs
Space Vehicles
Sustaining Programs
Support Programs
Complete Systems
WS-117L AF-97
①
WS-117L AF-181
②
WS-117L AF-347
③
④
Satellite Control AF-595
Discoverer AF-558
Program I AF-563
Midas AF-564
Follow-on AF-673
101
10N
1A
Follow-on AF-788
Follow-on AF-787
Ranger (NASA) AF-592
Advent (Army) AF-696
Vela Hotel (ARPA) AF-38
Prog II AF-677
Satellite Inspection AF-820
Agena D AF-21
PALC II AF-796
Pad 13 AF-937
PMRL/S AF-52
Bio-Med AF-791
Prog 102 AF-800
Snapshot AF-840
Prog I-A AF-841

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FOOTNOTES TO LMSC CONTRACT GENEOLOGY CHART

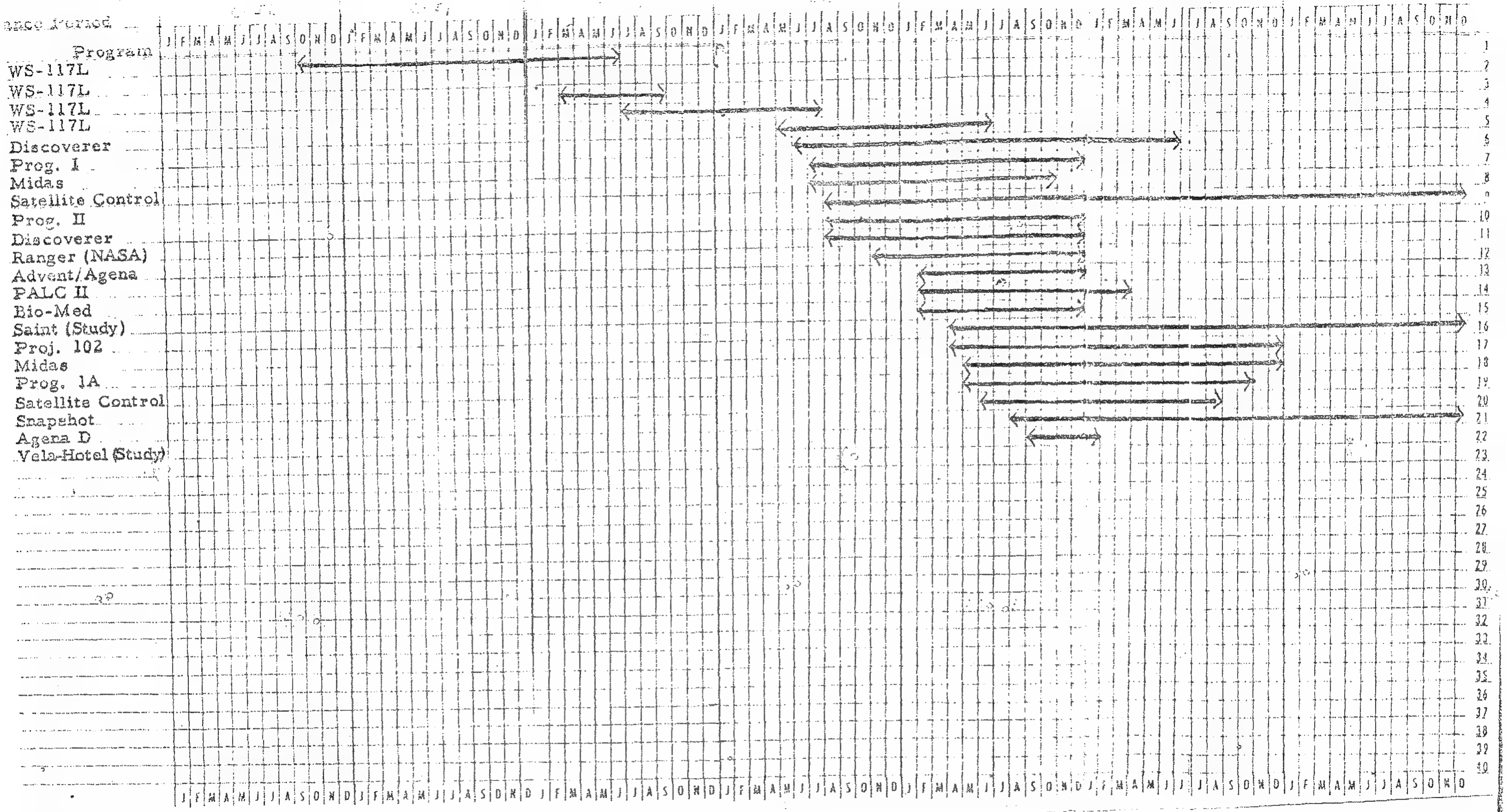
First WS 117L contract issued October 1956

Program accelerated contractually in January 1958 pursuant to ARPA direction, including procurement of recoverable capsule and Thor booster program (Discoverer).

ARPA directed renaming program to separate Midas, Discoverer, Program I.

Subsystem H designated Satellite Control System and contractually reoriented to prime contracts with Philco and Lockheed.

M SCHEDULE - 6 Years



rm 621 - Bond
rm 622 - Vellum

~~CONFIDENTIAL~~

115

26 Oct 61

255

[illegible]

Standardized Agena Space Vehicle (Agena B)

ARDC
Andrews AFB
Wash 25 D C

1. Reference is made to Headquarters USAF letter [illegible] to ARDC same subject as above dated [illegible] October 1961. The planned Standardized Agena Program outlined in the above referenced letter is [illegible] by the [illegible] [illegible] [illegible].

2. The Office of Defense Research and Engineering has approved the undertaking of a Phase I effort on the subject program. This Phase I effort is as outlined in paragraph 3 of the enclosed Memorandum for the Assistant Secretary of the Air Force (Research and Development) from the Deputy Director of Defense Research and Engineering, subject [illegible] dated [illegible]. A [illegible] written report covering the various aspects of the program as outlined in the enclosed memorandum will be submitted to this Headquarters by ARDC as soon after 1 December 1961 as possible.

3. Pending a decision to proceed with the Standardized Agena Program beyond Phase I, procurement of non-standard Agena B vehicles should be limited to those minimum quantities necessary to meet program requirements.

4. The Phase I effort will be financed in accordance with paragraph 5 of the Headquarters USAF letter referenced in paragraph 1 above. Pending a decision in December 1961 to proceed with the program beyond Phase I a [illegible] [illegible] obligated in [illegible] [illegible] for long lead time items [illegible] [illegible]

[illegible]

[illegible]

GROUP 4
DOWNGRADED AT 3 YEAR
INTERVALS; DECLASSIFIED

[illegible]

~~CONFIDENTIAL~~

[illegible]

260

[illegible] see under date

[illegible] see under date

/S/ Hal [illegible]

[illegible]

Paper

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AGENA OFFICE

MISSION AND ORGANIZATION

November 1961

PROGRAM SUMMARY

The Agena Office is basically a service organization. It supplies engineering services to all programs using the Agena Vehicle in the areas of airframe, propulsion, auxiliary power, guidance and control, and aerospace ground equipment. Its Production and Procurement Branch supplies procurement and production management services to those Agena using programs not having their own capability.

It is also a program office in the sense that it is responsible for all aspects of the Agena D, which will become the standard Agena used by all programs in the future. When this occurs, all programs will order the standard vehicle in a fashion similar to that used in obtaining Atlas and Thor boosters.

Incorporated in the Agena Aerospace Ground Equipment Branch is an activation group which is charged with the task of assuring that the Agena portion of all launch facilities are constructed as appropriate and in time to meet program schedules.

The above functions of the Agena Office are treated in greater detail under the branch descriptions.

ASTRO-VEHICLE BRANCH

AGENA OFFICE

The Astro-Vehicle Branch of the Agena office consists of the Airframe Section and the Propulsion Section.

AIRFRAME SECTION: Responsible for the aerodynamic and structural configuration of the Agena vehicle. Responsible for equipment installations design and analysis of aero-thermal effects during ascent and on-orbit satellite vehicle operation. The Airframe Section performs an essential service for each Program served by the Agena Vehicle. Contractor plans, proposals, work statements, and specifications are reviewed and analyzed for acceptability and adherance to Program requirements. The design and qualifying structural test of all vehicle structural components are monitored. Specific attention is given to ascent and to on-orbit structural requirements to assure that vehicle equipment installation design is satisfactorily accomplished. Structural improvements developed under one program are carefully reviewed for applicability to all programs. Program offices are kept advised of the airframe status of the vehicle carrying their payload.

These several objectives are accomplished principally through the medium of technical design review conferences conducted at the contractor plant. In these conferences the detailed status of each configuration is reviewed and analyzed. All engineering changes are reviewed. All qualification tests and their status are reviewed. These meetings are conducted at regular periodic intervals - new developments are reviewed, problem areas are explored, and the incorporation of design changes and improvements specified.

PROPULSION SECTION: Responsible for the development of liquid and solid rocket propulsion systems necessary to meet Air Force space system requirements as pertaining to the Agena satellite vehicle. Monitors the activities of the Systems Contractor and exercises technical management and direction over engine development and test, pressurization feed and load systems, pyrotechnics requirements, small solid rocket motor development, test and application and the development and test of secondary propulsion systems used for attitude control and orbit adjust functions. Assists in the establishment of requirements for changes in propulsion subsystem design, the utilization of new propellant combinations as specifically required by the Agena satellite vehicle.

This work is conducted in a manner similar to routine established in the Airframe Section above. A major difference exists in that in propulsion activities a major subcontractor, i.e., the engine subcontractor is involved. This situation entails added requirements for monitoring and engineering surveillance. Periodic meetings are conducted at the Engine manufacturer plant to review progress, test results, problem areas, and qualification progress and status.

The propulsion section is responsible for the development, qualification and test of all subsystems related to the main engine - solid starter grains - valve actuating squibs, pin pullers and pin pushers. The Secondary propulsion system, hot gas attitude control system and the pressurization, feed and load system are separate and integral subsystems related to the whole and are handled as separate and important projects.

Subsystem A provides support, housing and environment for the propulsion Subsystem B and for all other required ascent and on-orbit equipment involved in Subsystem C, Electrical Power; Subsystem D, Guidance and Subsystem H, Communication and Control. The two Subsystems A & B are an integral pair serving all other subsystems and all mission peculiar equipment and the payload. Technical management, engineering surveillance and control are full time jobs. Improvement through standardization to improve producibility and reliability are in process. Newer higher performance propulsion systems are in process. Simplification of Subsystems is also in process. The state of the art is constantly pursued to afford the Agena vehicle the most efficient and reliable structure and propulsion subsystems attainable.

Electronics Branch

1. The Electronics Branch is responsible for all auxiliary power, guidance, and control equipments used on the Agena vehicle. Specific functions of the Branch in carrying out this responsibility are described below:

a. Provide technical support to the Discoverer, Midas, Program I, Program II, Advent, NASA Ranger, NASA Satellite, WS621A, Vela Hotel Program Offices.

b. Review work statements to insure that mission requirements are included and that proper emphasis and controls are incorporated.

c. Review vehicle subsystem, and equipment specifications to insure that system parameters are properly stated and that the specification completely specifies the mission requirements.

d. Review cost proposals and furnish recommendations to the responsible Program Office as to the validity and adequacy of those items contained in the proposal pertaining to auxiliary power, guidance and control equipment.

e. Review technical literature and interview manufacturers representatives for new equipments and developments that may be used to improve the Agena vehicle.

f. Exercise control and supervision over the contractors through the medium of technical review meetings.

g. Coordinate subsystem requirements with the appropriate program offices to insure that equipments selected are the best available to satisfy mission requirements.

h. Conduct investigations and evaluate telemetered data to determine cause of equipment failures during flights of Agena vehicles.

i. Review and evaluate results of acceptance and special tests on auxiliary power, guidance and control equipments.

j. Furnish technical representation on vehicle acceptance teams.

k. Participate in design reviews and monitor the development of the following types of equipments:

(1) Auxiliary Power Section

(a) Flight batteries

(b) Solar cells and arrays

(c) Voltage regulators

    (d) Power amplifiers
    (e) Electrical power converters and inverters
    (f) Power transfer switches
(2) Guidance and Control Section
    (a) Pneumatic control equipment
    (b) Hydraulic control equipment
    (c) Horizon Sensors and Scanners
    (d) Velocity meters
    (e) Inertial Reference Packages
    (f) Control Moment Gyros
    (g) Pitch Reaction Wheels
    (h) Sun Position Indicators
    (i) Flight Control Electronics
    (j) Primary and Secondary Junction Boxes
    (k) Computers and Timers

Agena Aerospace Ground Equipment Branch

1. Responsible for project management of Point Arguello Launch Complex 2 (PALC #2) and AMR Space Launch Complex No. 13. This includes all functions relating to programing, planning, preparation of financial plans, work statements, development plans, and schedules necessary to insure adequacy and timeliness of requirements identification, procurement, delivery of equipment, and activation for the two launch complexes.

2. Responsible for programing, planning, integrating and project management for all phases of Agena AGE installation, checkout, and validation in support of Discoverer, Midas, Program 101, Program 102, Program II, NASA-Agena B, Advent, Saint, Vela Hotel, Snapshot. Specific installations and programs for which responsible include AMR Launch Complex No. 12 for Advent; Point Arguello Launch Complex No. 1 for Midas, Program 101 and Program 201; VAFB Launch Complex 75-3-5 for Program 102; VAFB Launch Complex 75-1-1 for NASA-Agena.

3. Responsible for the design, development, test and timely delivery of checkout equipment, used in the contractor's facility, the test bases and missile assembly building for satellite systems using Agena vehicles. Determine qualitative and quantitative requirements, design specifications, phase scheduling of equipment development, fabrication and end product acceptability for this equipment. Conduct technical review and determines the technical justification for each item of equipment recommended by the contractor, technical evaluation of contractor equipment design test criteria and resulting test data, to determine the adequacy of approved test criteria and acceptability of equipment tested. This responsibility encompasses the following major areas:

a. Agena D Automation.

b. Midas Automation.

c. Off line data reduction for Bldg 104.

d. Off line data reduction for VAFB MAB.

e. Factory checkout equipment augmentation.

f. Point Arguello Launch Complex 2.

g. Subsystem D & H increased capability.

h. Program 102.

i. Modification as required by changes to MIDAS, 101B, 201, and Discoverer Program.

j. Repetitive technical review of new work statements and resulting cost proposals for all programs.

4. Launch Control Equipment. Determine qualitative and quantitative requirements, design specifications, and development phase scheduling for Agena Launch Control Systems. Conducts technical evaluations of contractor equipment, test criteria, and equipment test data to determine the adequacy of the approved test criteria and acceptability of the equipment tested. Conducts technical evaluation of equipment to insure maintainability, supportability, logistic and operational adequacy. This effort encompasses the following major areas.

a. Point Arguello Launch Complex #2

b. Pad 13, AMR

3. Closed Loop R.F. for:

(1) Point Arguello Launch Complex 1

(2) Pad 75-1 VAFB

(3) Pad 75-3 VAFB

(4). Modification of AGE as required in support of 101B, Midas, 201, Discoverer, NASA, Project 102, and Advent.

(5) Repetitive technical review of new work statements and resulting cost proposals for all programs.

5. Handling and Servicing Equipment. Responsible for the design, development, test and timely delivery of Agena Ground Handling and servicing equipment for Satellite Systems. Determines qualitative and quantitative requirements, design specifications, equipment listings, development phase scheduling, fabrication and end product acceptability of this equipment. Conducts technical reviews to determine justification for items of the equipment. Approves test criteria and acceptability of the equipment tested. This effort encompasses the following major areas:

a. Point Arguello Launch Complex #2

b. Pad 13

c. Snapshot

d. Program 102

e. Midas (Bldg 15)

f. Modification of AGE as required in support of 101B, Midas, 201, Discoverer, NASA, Project 102, and Advent.

g. Repetitive technical review of new work statements and resulting cost proposals for all programs.

REQUIREMENTS BRANCH

As the number of programs using the Agena vehicle increased, the problems of coordinating the various types of documents (program plan, work statements, cost proposals, design specifications, make or buy lists, etc.) also increased. This Branch was created to handle and integrate the replies received from the engineering sections of SSZA. It also is a contact point for new program offices and assists them in their preliminary plans, supplying information and assistance. In recent weeks the initial efforts in documenting and directing the Agena D program has been carried on in this Branch. Two miscellaneous activities, Reliability and Specification Control, are also incorporated into this Branch. Since the Agena D is rapidly developing into a sizable program, this branch will have to pick-up and maintain the programming functions associated with the program. The increase of three officers and one secretary is required to handle the impending workload.

Production and Procurement Branch (Agena Office)

Functions and Responsibilities as follows:

Performs Production and Procurement management functions for the following programs:

NASA Agena B
ADVENT Agena
SATELLITE INSPECTOR Agena
ABS
AGENA D
VELA HOTEL Agena
PALC 2
PAD 13
MCSS Agena
CUE Ball

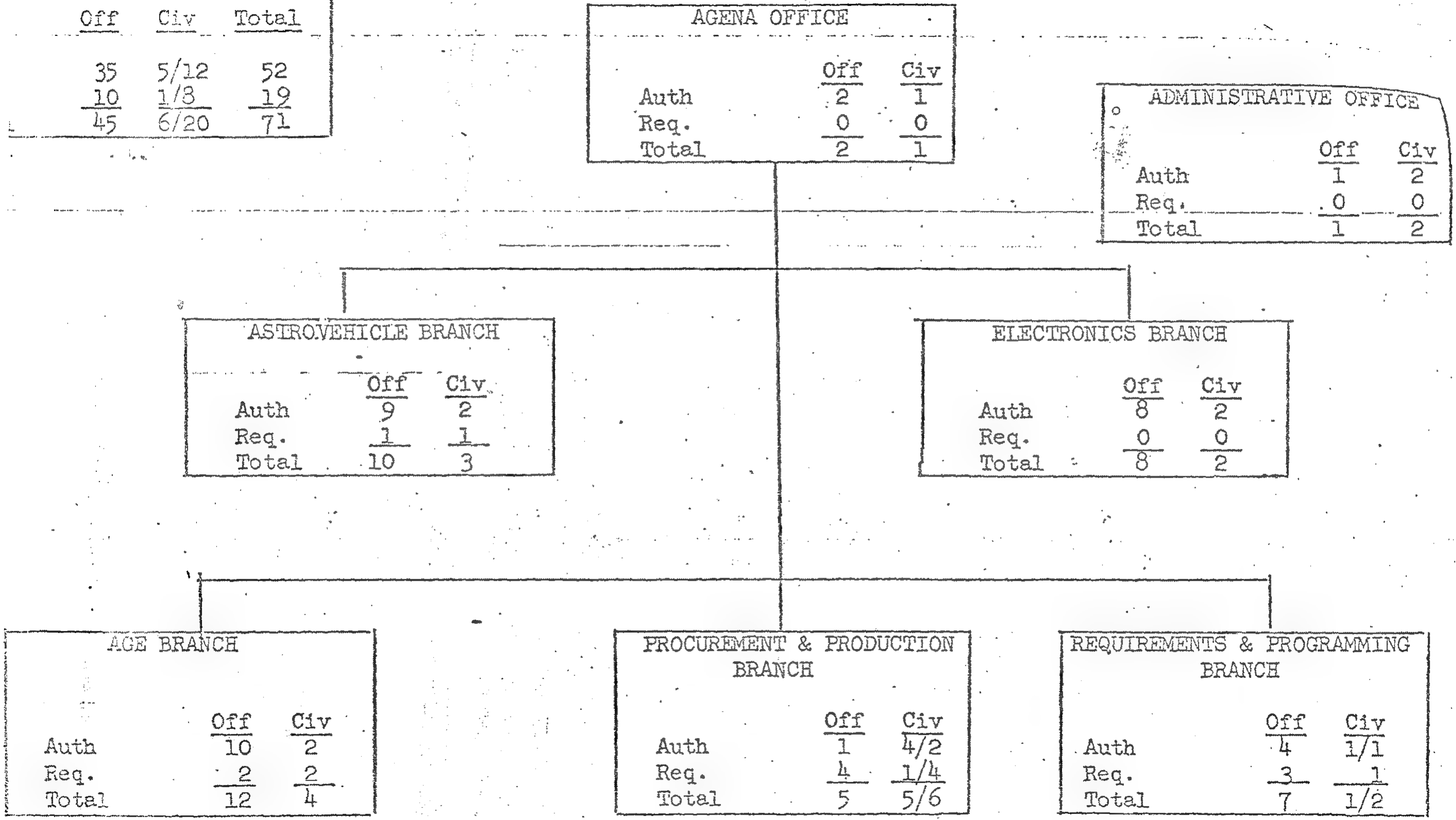
Responsibilities include monitoring of program requirements in support of the various programs, and translating these requirements into appropriate contractual actions in a timely fashion as well as the negotiation of the costs and fees in connection therewith. Surveils and evaluates all major production and quality control facets of contractor performance in response to his contractual obligations. Monitors the production and installation status of all assigned weapon system equipments. Performs management level production expediting. Performs common production operating functions with those space surveillance contractors who are charged with multiple program responsibility. Responsible for procedures and policies in connection with above assigned programs.

DEPUTY FOR SATELLITE SYSTEMS

271

RECAP

Off	Civ	Total
35	5/12	52
10	1/8	19
45	6/20	71



AGENA OFFICE

	Off	Civ
Auth	2	1
Req.	0	0
Total	2	1

ADMINISTRATIVE OFFICE

	Off	Civ
Auth	1	2
Req.	0	0
Total	1	2

ASTROVEHICLE BRANCH

	Off	Civ
Auth	9	2
Req.	1	1
Total	10	3

ELECTRONICS BRANCH

	Off	Civ
Auth	8	2
Req.	0	0
Total	8	2

AGE BRANCH

	Off	Civ
Auth	10	2
Req.	2	2
Total	12	4

PROCUREMENT & PRODUCTION BRANCH

	Off	Civ
Auth	1	4/2
Req.	4	1/4
Total	5	5/6

REQUIREMENTS & PROGRAMMING BRANCH

	Off	Civ
Auth	4	1/1
Req.	3	1
Total	7	1/2

AGENA OFFICE

Chief	E. F. Blum, Lt Col
Asst Chief	R. O. Smith, Lt Col
Secretary	V. Murray

Administrative Branch

Admin Officer	
Admin Asst	I. Zimmer
Mail & File Clerk	D. Gardner

ASTROVEHICLE BRANCH

Chief	R. K. LeBeck, Lt Col

Air Frame Section

Chief	G. L. Auerbach, Major
	L. S. Nolan, Capt
	A. Aharonian, Capt
	E. W. Pope, Lt
Secretary	D. Mougianes

Propulsion Section

Chief	G. W. Watts, Capt
	J. E. Wallace, Lt
	E. J. Croke, Lt
Secretary	M. Terpening

ELECTRONICS BRANCH

Chief	C. E. Riddle, Lt Col

Auxiliary Power Section

Chief	L. A. Daggett, Major
	W. H. Ritchie, Capt
	A. R. Ellison, Capt
Secretary	

Guidance & Control Section

Chief	J. T. Barnes, Major
	E. A. Lembeck, Major
	W. T. Jones, Major
	R. L. Stone, Capt
Secretary	E. Smith

AEROSPACE GROUND EQUIPMENT BRANCH

Chief	J. S. Plummer, Lt Col (U)

Aerospace Ground Equipment Section

Chief	
Sys CO (Acting Chief)	R. H. Knapp, Major
Sub Sys CO	R. J. Briones, Lt
Hndlg & Serv	R. N. Kehe, Lt
Launch Cont E	D. L. Chapman, Capt
Hndlg & Serv	
Secretary	H. Fukushima

Launch Complex Activation Section

Chief	A. E. Gilpatrick, Major
	T. G. Ashmore, Major
	R. A. Wells, Capt
	G. F. Mocilnikar, Capt
Secretary	M. Cochran

PROD & PROC BRANCH

Chief	G. B. Cooper, Major

Production Section

Chief (Acting)	G. B. Cooper, Major (U)
	C. V. Mehlhoff, Major (U)
	J. F. Lindsey, Lt (U)

Procurement Section

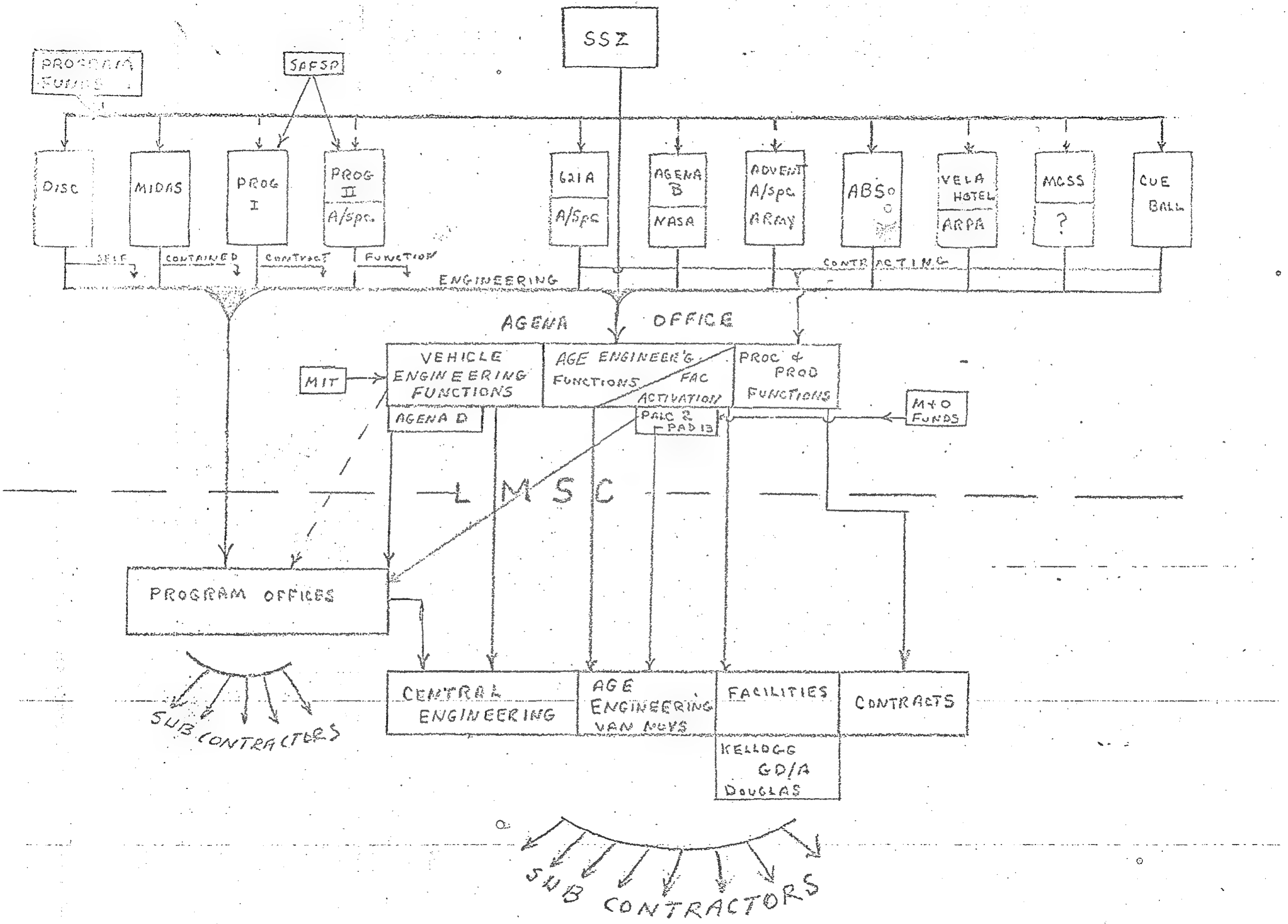
Chief	W. Grifka, GS-13
	D. McEnroe, GS-12
	E. Pratt, GS-12
	F. Austin, GS-11
	V. Taylor, GS-5
Secretary	G. Cason

REQUIREMENTS AND PROG BRANCH

Chief	
Reliability (Acting)	D. L. Kennedy, Major
	J. A. Fiebelkorn, Capt
	P. E. Hebert, Capt
	O. Phillips, GS-12
Secretary	J. Nelson

(U) Unauthorized Position

MANAGEMENT STRUCTURE



SATELLITE INSPECTOR AGENA

Funding and Contract Summary

The expected program funding for present requirements approximates $15,500,000 with a current annual expenditure rate of approximately $7,000,000.

There is now one active SATELLITE INSPECTOR study contract and program participation in the Agena D contract for supply of required Agena D vehicles. Another contract or augmentation of existing study contract will be necessary to provide for Agena D mission peculiars for the SATELLITE INSPECTOR program. It is anticipated that contract changes with costs in excess of 15% of the yearly budget will be incurred on this program. If any additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices.

MCSS

Funding and Contract Summary

The estimated program funding for this program is estimated to be $25,000,000 with estimated annual expenditure rate of $8,000,000.

There are no active contracts on this program, but it is anticipated that a contract will be required shortly for the Agena D mission peculiar requirements and program participation in the Agena D procurements will be required.

AGENA D

Funding and Contract Summary

The expected program funding for present requirements approximates $97,500,000 with a current annual expenditure rate of approximately $30,000,000.

There is now one active contract for Agena D which will provide vehicles in support of various programs. Additional requirements will be contractually covered by another contract or contracts. It is anticipated that there will be contract changes with costs approximating 7% of the yearly budget incurred on this program.

ADVENT/AGENA

Funding and Contract Summary

The expected program funding for present requirements approximates $14,000,000 with a current annual expenditure rate of approximately $7,000,000.

There is now one active ADVENT/AGENA contract with LMSC and another effort in prospect of approximately $10,000,000 value. If any additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices. The program is currently experiencing contract changes of approximately 10% of the annual budget.

VELA HOTEL AGENA

Funding and Contract Summary

The expected program funding for present requirements approximates $17,000,000 with a current annual expenditure rate of approximately $6,000,000.

There is now one active VELA HOTEL Agena study contract and program participation in the Agena D contract for supply of required Agena D vehciles. Another contract or augmentation of existing study contract will be necessary to provide for Agena D mission peculiars for the VELA HOTEL program. It is anticipated that contract changes with costs in excess of 15% of the yearly budget will be incurred on this program. If any additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices.

CUE BALL

Funding and Contract Summary

The expected program funding for present requirements approximates $20,000,000 with a current annual expenditure rate of approximately $10,000,000.

This program will require a contract for Agena D mission peculiars and will participate in the Agena D procurements.

NASA/AGENA B

Funding and Contract Summary

The expected program funding for present requirements approximates $115,000,000 with a current annual expenditure rate of approximately $50,000,000.

There is now one active NASA/AGENA B contract with LMSC and one letter contract supplement thereto. The award of one additional contract, value approximately $12,000,000, is in prospect. As additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices. The program is currently experiencing contract changes of approximately 10% of the annual budget.

ABS-BOSS

Funding and Contract Summary

The expected program funding for present requirements approximates $17,500,000 with a current annual expenditure rate of approximately $8,000,000.

There is now one active ABS contract and one letter contract supplement thereto. Participation in the Agena D program and another contract or augmentation of the existing contract will be necessary for contractual coverage of the other program requirements. This coverage will be provided in accordance with good procurement practices and fund availability. It is anticipated that there will be contract changes amounting to 20% of the annual budget incurred on this program.

PALC 2

Funding and Contract Summary

The expected program funding for present requirements approximates $14,000,000 with a current annual expenditure rate of approximately $8,000,000.

There is now one active PALC 2 contract. If any additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices. It is anticipated that contract changes will be incurred on this program of approximately 10% of the annual budget.

PAD 13

Funding and Contract Summary

The expected program funding for present requirements approximates $5,000,000 with a current annual expenditure rate of approximately $3,500,000.

There is now one active PAD 13 contract. If any additional requirements are authorized they will be added either by supplemental agreement to an existing contract or procured by the initiation of a new contract in accordance with good procurement practices. It is anticipated that contract changes will be incurred on this program of approximately 10% of the annual budget.

COMMENT ON ABILITY TO ACCOMPLISH ASSIGNED RESPONSIBILITIES WITH PRESENT AUTHORIZED MANNING

The present organization can accomplish its tasks in the engineering sections with its present compliment. This will only be true if the trend to use the standard Agena D continues, otherwise more personnel will be required to handle the growing number of programs with their various requirements. A requirement for additional personnel is stated for the Procurement and Production, Requirement and Programing, and AGE Branches.

The Procurement and Production Branch has never been properly staffed for the work assigned to it. Temporary relief was obtained by converting secretarial positions to buyer positions. The Production Section has obtained some relief by assigning two production staff officers in "overage" status.

The Requirements and Programing Branch has no capability to pick up the programing functions associated with the Agena D. This work is being done at the present time by the Production Section. Additional personnel are required.

As Space Systems programs increase so do their requirements for Agena facilities and handling and service equipment. Additional facilities and modifications to existing facilities are increasing. Trends toward partial automation are seen as numbers of Agena vehicles increase. This increased scope of Agena effort will require additional personnel in the AGE Branch, this is particularly true if MCP funds are used for facilities since the programing function then falls on the Agena Office. Additional personnel have been requested.

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DEPARTMENT OF THE AIR FORCE

Office of the Assistant Secretary

3 November 1961

MEMORANDUM FOR CHIEF OF STAFF

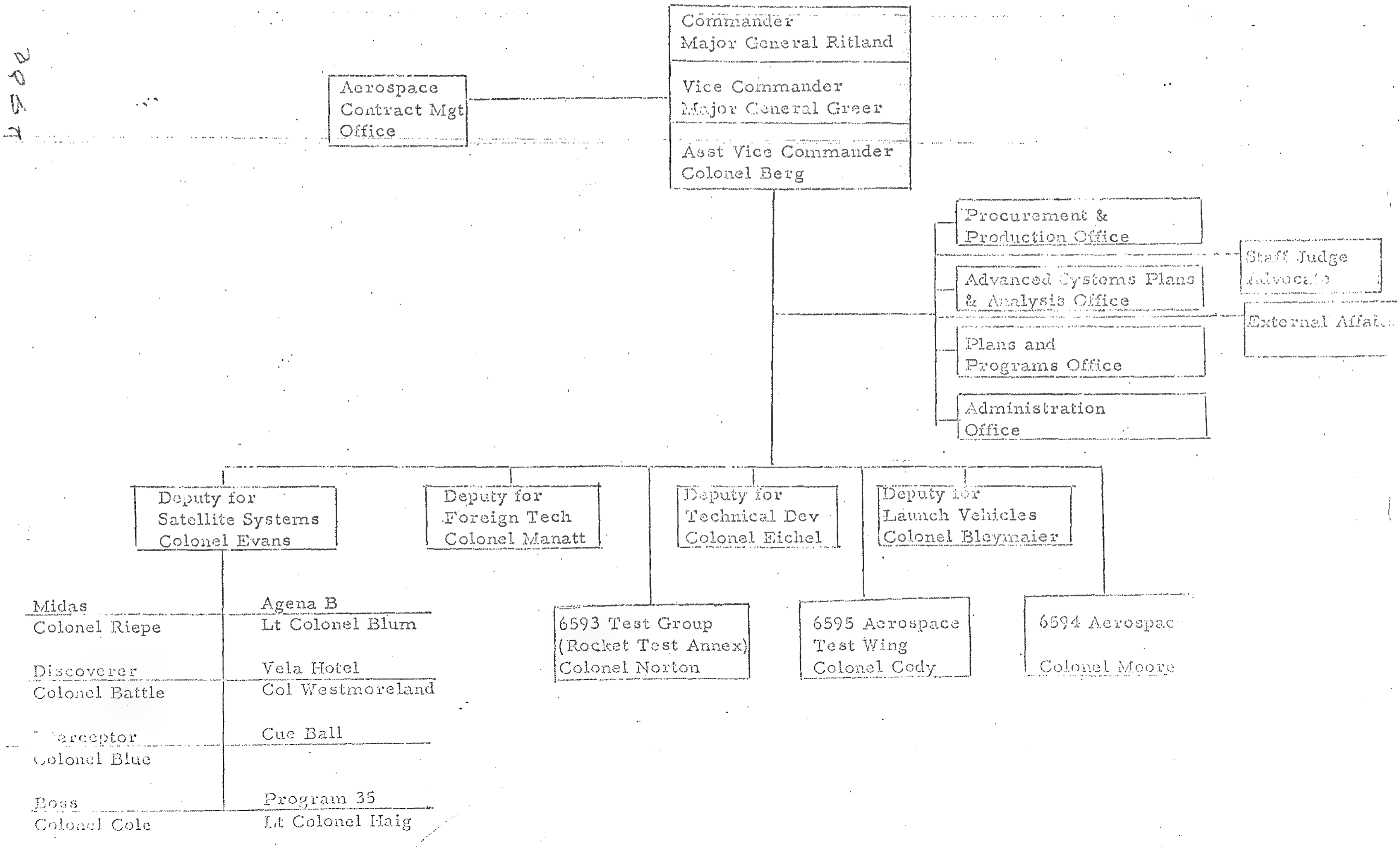
SUBJECT: Standardized AGENA

1. Consistent with the agreements reached between Dr. Charyk and Dr. Brown, as outlined in the attached memorandum, we will not proceed with the standardized AGENA program on the Phase I basis, outlined in the Deputy Director, Defense Research and Engineering, memo to me dated 4 October 1961, same subject as above.

2. It has also been decided that, at this time, we will not employ the services of Dr. Sterling Livingston and his group from the Logistics Management Institute to review the organizational and managerial problems associated with the AGENA development.

/s/ BROCKWAY McMILLAN
Assistant Secretary
Research and Development

SPACE SYSTEMS DIVISION



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DEPARTMENT OF THE AIR FORCE
Washington

Office of the Under Secretary 31 October 1961

MEMORANDUM FOR DIRECTOR, DEFENSE RESEARCH & ENGINEERING

Reference: Memo for Asst. Secy of AF, R&D, from Depy Dir. Defense R&E, dtd 4 Oct 61, subj: Standardized AGENA

With regard to the referenced memorandum, and to our conversation yesterday, it is my understanding that no actions will be taken relative to the procedures outlined in the memorandum. We shall, meantime, continue our efforts along the lines that I discussed with you and will provide you with a full report as to our actions and conclusions.

/s/ Joseph V. Charyk

cc: Asst. Secy AF, R&D
Mr. Sterling Livingston

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6 NOV 1959

WDZA

Items To Be Considered When Accelerating the Agena B Schedule

Colonel Evans

1. The following items appear to me to require consideration when we accelerate the Agena B delivery schedule:

a. We will be changing the model of the Discoverer at a time that is considered "critical."

b. The accelerated design and manufacturing effort will severely limit the test program and the ability to incorporate fixes determined necessary as a result of the test program.

c. LMSC is in essence planning a prototype design effort closely followed by a production design effort. Obviously this will result in considerably higher cost.

d. The need for specifications on the Agena B has been repeatedly criticized. It is necessary to have model specifications if we intend to pursue fixed price contracting with the contractors. Likewise, it is planned to have production Agena B's accepted by the AFPR instead of by a BMD acceptance team. This will require model specifications. The many using programs will want and require model specifications.

e. The checkout line for systems on the Agena B to be installed in Bldg 151 should be the automatic system test equipment now planned. The early birds should be checked out in Bldg 104 on the current manual systems test equipment. If it is planned to move Discoverer check out requirements to Bldg 151, this will disrupt their operation for a considerable period and likewise slow up Discoverer production.

f. The whole concept of the production engineering of the Agena B to produce an Agena B may well be in jeopardy. It must be made clear to Lockheed that we intend to stick with our initial Agena B objectives:

(1) A single basic vehicle meeting all program requirements.

(2) Improved performance.

(3) Simplification in vehicle design, fabrication and checkout.

(4) Production design, tooling and techniques.

(5) Improved reliability.

28/

OFFICE SYMBOL	ORIGINATOR				
NAME (SIGNATURE)					
DATE					

AFBMD Form 11
1 Nov 59

COORDINATION SHEET

Replaces AFBMD Form 11, 1 Jun 59

AIR FORCE (DPS, Ogden, Utah

2. Several items that may cause us difficulty from an engineering standpoint are:

a. The orifice pressurization system must be developed.

b. The current Lockheed forward equipment rack design may have difficulty with low frequency vibration problems. This could entail either a redesign of forward equipment rack or of some of the forward equipment rack components.

c. The schedule for the DTV is so accelerated that it will probably be, at best, only a fair representation of the first flight vehicles.

d. An effective reliability program is doubtful.

e. This office as well as many using programs has a need for engineering analysis reports, however, it has been our experience that Lockheed needs them more than anybody.

EDWARD F. [illegible]
Lt Colonel, USAF
Chief, Agena Office

OFFICE SYMBOL	ORIGINATOR				
NAME (SIGNATURE)					
DATE					

AFBMD Form 11
1 Nov 59

COORDINATION SHEET

Replaces AFBMD Form 11, 1 Jun 59

AIR FORCE (DPS, Ogden, U

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO
ATTN OF: SSZ

SUBJECT: Agena "D"

NOV 6 1961

TO: General Ritland
General Greer

1. I am so deeply concerned by recent trends occurring in the Agena "D" concept, organizational plans, and personnel selections that I must record my views on these matters.

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2. The "standardized Agena" concept has had a long gestation period -- something over two years of watching new and different configurations of Agena come with new program requirements, new people, and new ideas. Many discussions, both with LMSC and within the SSD, were held before it was determined, early in 1961, that the Air Force had much to gain by basic re-design of the Agena "B" and rigid configuration control thereafter. Design studies were initiated with LMSC in June 1961 and were specifically directed toward achieving a standard Agena vehicle for ascent into orbit to serve all known requirements. January 1963 was chosen arbitrarily as first flight date with the understanding that all new vehicle buys for launch after that date would be the standard Agena (later named the Agena D). At the time these ground rules were established Discoverer was scheduled for completion in mid to late 1962. Program I and Program II had sufficient vehicles on order so that phase into these programs would occur in the spring or summer of 1963, if new vehicle buys for those programs were approved. Hence the first users of the Agena "D" were programs like Vela Hotel, 621A, or some new program such as Cue Ball; all of these programs contemplated spacecraft, rather than the Agena, which would contain power supplies, stabilization, etc. to fulfill the on-orbit functions required by the particular mission.

3. As the preliminary design progressed, two salient points emerged:

a. It appeared feasible and desirable to design structure, bracketry, and connections into the Agena "D" to accept "optional extras" which could be installed for those missions which needed things like dual burn capability, a second of different radar beacon, additional gas capacity for on-orbit control and similar features.

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DOWNGRADED AT 12 YEAR INTERVALS; NOT AUTOMATICALLY DECLASSIFIED. DOD DIR 5200.10

b. It appeared feasible and very desirable to production engineer the Agena "D" so as to obtain economic benefits as well as improved reliability, maintainability, etc. This production engineering implied a great deal more than just hardware production. It involved automated checkout equipments, improved system test procedures and equipment, and better data reduction capability.

4. In September the concept outlined above, together with some technical design details and costs were presented to all levels of the Air Force and to DDR&E and approved for implementation. DDR&E placed a qualification of further review after design was completed. SAFUS directed SSD to buy on a fixed price basis as soon as possible.

5. In October C. L. Johnson, in a whirlwind investigation of how to improve Agena reliability, seized upon the Agena "D" and held it to be the panacea for Discoverer and SAMOS, two programs which had not been heavily weighed during the preliminary design. After talking to many working level people, he confronted LMSC management with a proposed six to eight month acceleration. What could LMSC do? Should they dispute the renowned C. J. Johnson, Vice President of LAC? Should they admit that they, LMSC, couldn't do what Kelly could do? Should they admit that they hadn't really designed the Agena "D" to fulfill the Discoverer and SAFSP programs and thus incur the wrath of SAFUS? Or should they climb aboard the band wagon, and at the same time rid themselves of some of the ever tightening USAF/Aerospace surveillance of their activities? (C. L. Johnson's fifteen rules of conduct.) The answer is obvious.

6. Having jumped on the bandwagon, LMSC is frantically trying to prepare plans to implement the Johnson schedule. According to my latest report, Mr. Fred O'Green has been chosen to head the Agena "D" project group. He will be given responsibility for the Agena "D", the "optional extras" and the accompanying AGE design changes. He will be housed in a separate building (Bldg 151). To insure compatible Discoverer design, since it hasn't been done to date, Jim Plummer will be moved into Building 151 also and Discoverer will be completely projectized, including the Systems Test activities now under Ralph King. This involves uprooting four systems checkout lines from Building 104 and reinstalling them in Building 151 -- thus splitting systems test personnel, equipment, data reduction gear and negating the original standard Agena concept.

7. At SAFUS, the proposal for acceleration has been endorsed. It has been directed that the Agena "D" be projectized and separated from other Agena functions. A small, competent, vertical (?) project office has been suggested, headed by Lt Col Worthington who will report directly to SSZ, bypassing the current Chief, Agena Office, Lt Colonel Blum. Manning from the new office comes primarily from Colonel Blum's organization. Lt Colonel Blum has had the responsibility to date for the Agena "D".

8. Faced with these facts and plans, I must question the wisdom of accelerating the Agena "D" by eight months and making its prime purpose to serve Discoverer, LMSC has just recently been directed to accelerate Discoverer, Program I and Program II by an appreciable amount. If you add to this the concurrent eight months' acceleration of a modified vehicle and then specify that this modified vehicle (Agena "D") is to service Discoverer and SAFSP, a design workload of sizable proportions and cost is added on top of an already tottery and slip-ridden structure at LMSC. This design workload is not only in Agena "D", but will probably primarily affect the recovery capsules of Discoverer, Program I and Program II. I cannot believe that such a hiatus will result in improved reliability for any program, at least during calendar 1962. Because of the shortened time, a less thorough design job will be done -- less ground testing will take place prior to flight because time will not permit it.

9. Procedures for handling the modified Agenas and capsules will be hurried and not thoroughly thought through or checked out. A standardized Agena will not emerge -- merely another version of Agena to add to the seven already in existence. I might also point out that Fred O'Green has been the responsible individual not only for the current (30% to 40% reliable) Discoverer Agena but also every one of the other seven or more model changes that have been made. He has been the main opposing force in LMSC to Agena standardization for the last three years. If the only goal to be attempted is to fly a new Discoverer Agena in June 1962, then the O'Green-Plummer grouping in Building 151 has the best chance of doing it. A standard Agena "D", usable for many programs, will not be produced under the management and acceleration specified.

10. Insofar as SSD organization is concerned, I think the least desirable course of action has been selected. If Discoverer is the main user for the accelerated Agena "D", then I suggest that the Discoverer office

pick up the SSD responsibility. If we must separate the Agena "D" and its technical monitors from the present Agena office, then the people should be placed in Colonel Battle's office and given the charter -- and the additional funds required -- to do the job.

11. My recommendations follow:

a. Indorse and retain the original standardized Agena concept.

b. Adopt in principle all of the C. L. Johnson recommendations except for schedule.

c. Accelerate the Agena "D" something like three to four months providing for first flight in September or October of 1962 utilizing the Discoverer program for first launch.

d. Phase Agena "D"s into SAFSP programs as new vehicle buys are stated.

e. Phase the Agena "D" into all other new programs which are scheduled for launch during calendar year 1963 as their new vehicles are ordered.

f. Proceed with the use of Building 151 for the Agena "D".

g. Do not disrupt systems test activities as now operating.

h. Do not establish a separate Agena "D" office except as a part of the Agena office. If it is necessary to strengthen the Agena office, do so by bringing additional well-qualified people into the present Agena office, then projectizing within that office to accomplish the Agena "D" portion of our responsibilities.

i. Insure that the LMSC individual heading the Agena "D" office is given a very clearly stated mission to standardize the Agena vehicle, not just to build another version.

Harry L. Evans

HARRY L. EVANS
Colonel, USAF
Deputy for Satellite Systems

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LOCKHEED AIRCRAFT CORPORATION
MISSILES and SPACE DIVISION

INTERDEPARTMENTAL COMMUNICATION

DATE November 9, 1961

TO F. W. O'Green ORGN. 68-01 FACILITY 1
J. Plummer (R. C. Kent)

FROM W. M. Hawkins ORGN. 60-01 FACILITY 1 EXT. 25081

SUBJECT: SUMMARY OF INSTRUCTIONS ISSUED BY DR. CHARYK IN AGENA D MEETING ON NOVEMBER 7, 1961

DIRECT INSTRUCTIONS BY DR. CHARYK:

1. AFSSD and LMSC should get immediate agreement on Work Statement (assumed to be simple version recommended by C. L. Johnson report).

2. AFSSD and LMSC should get immediate agreement on contract arrangement. Some form of incentive is encouraged strongly.

3. ~~AFSSD and LMSC must agree on ground rules for operation.~~ (Assumed to be agreed upon interpretation of Johnson report rules.)

4. Impact of Agena D on programs other than Discoverer to be decided program by program including estimate of probable follow-on potential of each.

5. AF must decide on Program Director and organization.

6. Need summary of operating principles to send to DOD and NASA in order to prevent interference outside of AF control.

7. Need AF and LMSC concurrence on ground rules for assessment of contract incentives.

8. AF wants to proceed on Agena D-Discoverer on schedule proposed in Johnson report with the approximate schedule as proposed by LMSC for the 12 Agena D's.

9. AF wants LMSC not to submerge the concept of separate "sell off" for Agena D in the acceleration of Discoverer. Agena D program must maintain identity and aim for completely separate production and checkout prior to use by individual programs.

10. Aim for some form of incentive contract implies strongly:

    a. Better cost allocation system
    b. Better cost control
    c. Better cost definition

11. Cost reporting on only total expenditures not enough. LMSC and AF should seek system that:

    a. Utilizes simplest possible breakdown of cost
    b. Permits earliest possible recognition of ultimate completion costs of program

12. Lifeboat program for Agena B-Discoverer should be started immediately f earliest possible inclusion in Discoverer program.

13. Early schedule study must be made to be sure that enough Agena B's exist for Discoverer back-up and that these can be accelerated to fill scheduled flight positions of Agena D-Discoverer if D program runs into technical problems.

Dr. Charyk expects a personal report to be delivered to him by AFSSD and LMSC within 10 days (assumed to be November 17) covering Items 1, 2 & 3 above.

This summary serves as an instruction to both the Agena D and Program Management Directors to initiate and pursue their respective programs. Best of luck--I assure you that all of us in the Space Systems Division are behind you and that the rest of LMSC and the corporation officers stand ready to help when called upon.

Willis M. Hawkins

Willis M. Hawkins
Vice President and General Manager
Space Systems Division

WMH:pb

cc: D. J. Haughton
C. L. Johnson
L. E. Root
H. J. Brown
D. J. Gribbon
R. Weller
R. D. King
L. A. Carter

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~~DRAFT~~ PERSONAL FOR B.A.S. 13 Nov 61

SUBJECT: Organizational Changes and Personnel Reassignments

TO: AFSC (Gen Schriever)

1. In response to your query to me this morning on the telephone, I am attaching two charts. I believe the charts themselves are self-explanatory.

2. For the sake of clarification, the 1st chart (Atch 1) outlines the present SSD organization naming key personnel to include Program Directors within the Deputy for Satellite Systems. The second chart (Atch 2) is the same as the one I briefed to you on 4 Nov with one exception; that being the indication of the Agena D office directly off of my box.

3. Where the names are concerned, I am sure that you will notice I have selected Col Kucheman to be Deputy for Satellite Systems. Col Kucheman has been Col Evans' Deputy for the past two years. You will also notice the assignment of LtCol Norman as Program Director of MIDAS and the assignment of Col Riepe as Program Director for Cue Ball. Once again, I would like to point out that Col Norman has actually been operating for the past two years as Col Riepe's deputy. Employment of these gentlemen with their wide experience insures continuity of effort. I have had a discussion with each of the people whose names appear on this chart, pointing out to them my proposals

for changes in their assignments. They have all indicated a considerable enthusiasm for this new organization and for their individual assignments. Based upon your approval during our 4 Nov discussion, I am moving ahead rapidly in hopes of achieving some very early stability of my SSD organization.

Ossie

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copy

20 November 1961

Project 662A

Deputies and Chiefs of Major Staff Offices

Announcement is made of the appointment of Colonel Henry B. Kucheman as Director, 662A and the relief of Colonel Harry L. Evans as Acting Director thereof, effective immediately.

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/s/ O. J. Ritland
O. J. RITLAND
Major General, USAF
Commander

copy 20 November 1961

Establishment of Project Office 662A

Deputies and Chiefs of Major Staff Offices

1. The Secretary of the Air Force has recently approved the Agena D program and ordered that it be accelerated by approximately six months. In addition he has stated that unusual technical and contractual actions must be taken by the Air Force to insure that the Agena D is achieved as a standard vehicle and on the time scale specified.

2. It has been decided that establishment of a special project office is required. Effective immediately an Agena D project office is established with the identifying symbol of SSGD. The Director of this office will report directly to the Commander, SSD. The Agena D project office will be organized with a Director and four small branches as follows:

a. Administration

b. Engineering

c. AGE/STE

d. Contract Administration

/s/ O. J. Ritland
O. J. RITLAND
Major General, USAF
Commander

~~SECRET~~

20 November 1961

~~CONFIDENTIAL~~

MEMORANDUM FOR RECORD

SUBJECT: Agena D

1. On 17 November 1961 at 1000, briefing was made to Dr. Charyk, General Curtin and his staff, two civilians attached to Dr. Charyk's office. The briefing which we gave outlined the rules of operation for Agena D project, the agreed to work statement, a plan for phasing the Agena D into all using projects, a brief outline of the accounting procedures to be used by LMSC, a statement of the costs of the project and an indication of the proposed Air Force organization and implementing actions required to get the project underway. Dr. Charyk's major comment had to do with incentive fee provisions which were proposed by LMSC and he indicated that another group was being convened at 1100 to discuss this particular point in greater detail. The briefing was adjourned at about 1100 and reconvened in another room five minutes later.

2. The second briefing was attended by Dr. Charyk, Secretary Imirie, Secretary MacMillan, General Thurman, General Holzapple, General Farnsworth, General Mitchell, General Curtin, and various members of the staffs of those listed above. The briefing was repeated for them essentially as given previously to Dr. Charyk. At the conclusion of the briefing, Dr. Charyk indicated that he would discuss Air Force organization with General Schriever on 20 November, that he felt additional policy guidance was required for the incentive fee concept, and at that time he appointed General Thurman as head of a small committee to provide this policy guidance to the West Coast so that they could proceed to negotiate the contract.

3. Following this meeting, General Thurman established a working committee and requested that this committee be briefed at 1400 Friday afternoon on the Agena D project. This was accomplished and the working group intended to convene at 0730 Monday morning to provide a proposed Air Force position on the incentive contract with LMSC to General Thurman by 1200 on 20 November. Representation from the Agena D project office was requested and Colonel Henry B. Fletcher was nominated.

HARRY L. EVANS
Colonel, USAF

1 Atch
Briefing Charts

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Z-4029

COL EVANS' BRIEFING NOTES FOR HQ AFSC/USAF/SAFSP

17 November Briefing

1. Cover Chart:

   A. Mr. O'Green - LMSC
   B. Mr. Plummer - LMSC
   C. Col Zukerberg - Discover P.O. SSD
   D. Evans
      (1) Acting Director, A. P. - Not as Deputy for S.S., AFSC or Vice Director, SAFSP
      (2) Channels not established - no boss
      (3) Information has not been reviewed
      (4) Therefore, I am providing my own opinion as Director, A.P. - not representing SSD or SAFSP. Remarks made so if I say the wrong thing, blame me - not my boss.

2. Outline:

   Point out Speakers

3. Work Statement

   A. Significant Points

      (1) Preamble of Johnson rules becomes part of work statement and hence part of contract. Failure of USAF to live up to these rules can provide an excuse to LMSC in meeting provisions of incentive fee structure. Also, essentially, memo Director, A.P. must have procurement authority.

   B. Not get agreement on the communications and control items that are to be classed as optional equipment.

   C. Delivery Schedule not attached.

4. Costs - Agena D - not thoroughly reviewed
   - higher than anticipated
   - probably more accurate (firm) than costs normally are at this point (10 days)

   Overall - Higher than they would have been by allocation of additional design time to minimize complex change.

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DOD DIR 5200.10

Incentive Fee Concept & Structure.

(1) Agree with concept - do not agree with figures.

(2) Median line too high - should be a move from 6-8%; if all these gavel people are worth 8%, let's reduce.

The CPFF contracts (which amount to over $400 M) by 10% - also setting precedent of higher base from which to measure incentive - not in govt interest.

No dead   should be allowed or 10 at most.

Essentially no penalty at all - 6-4 ; Drop 11-12 to Max

(3) Unilateral rating by SAF recommended based upon specific Justifications and recommendations by Director, SSGV.

Standardization -
Degree of change from configuration to configuration.

Ease of Operation

Reliability &
Gen LMSC Performance

Systems C.O. - individually tailored
- To convert is costly
- Make do - can't optimize on time scales

(1) Conflict with NASA binds

(2) What do I do with the Ruebel directives? - Haven't been home to read my mail.

USAF ORGANIZATION

Lay Plenty of Ground Work

A. Tough job - short time scales

B. Does take on-the-spot decisions both technical and contractual - or abandon all govt supervision.

C. Money problems will be difficult initially.

D. Ruebel - Air Staff interest and concern is considerable.

E. NASA/Army/ARPA/Others will want to get into the act. Customer service will be a difficult problem - Info must be centralized.

F. National importance of Agena needs recognizition and support at highest levels of the USAF and above.

G. Program Director - duty.

Check on Facilities costs -

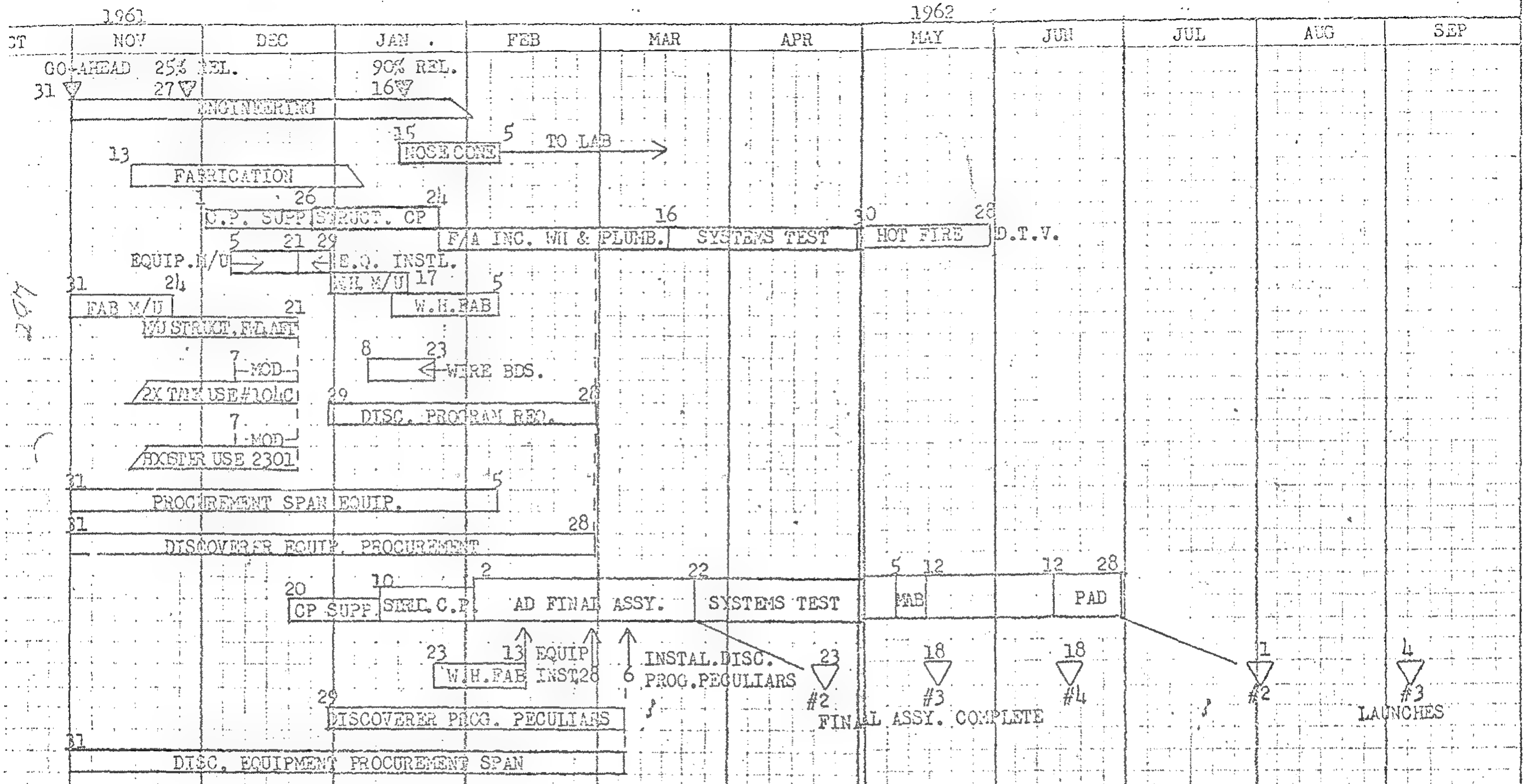
No enabling clause in contract until settled.

Accounting order Mr. Ray Anderson.

OFFICIAL OPERATING SCHEDULE (B)

AGENA D ACCELERATION

LMSC
DATE 10-24-61
PREPARED BY K.J. Criqui
APPROVED BY 61-65
PAGE ______ OF ______



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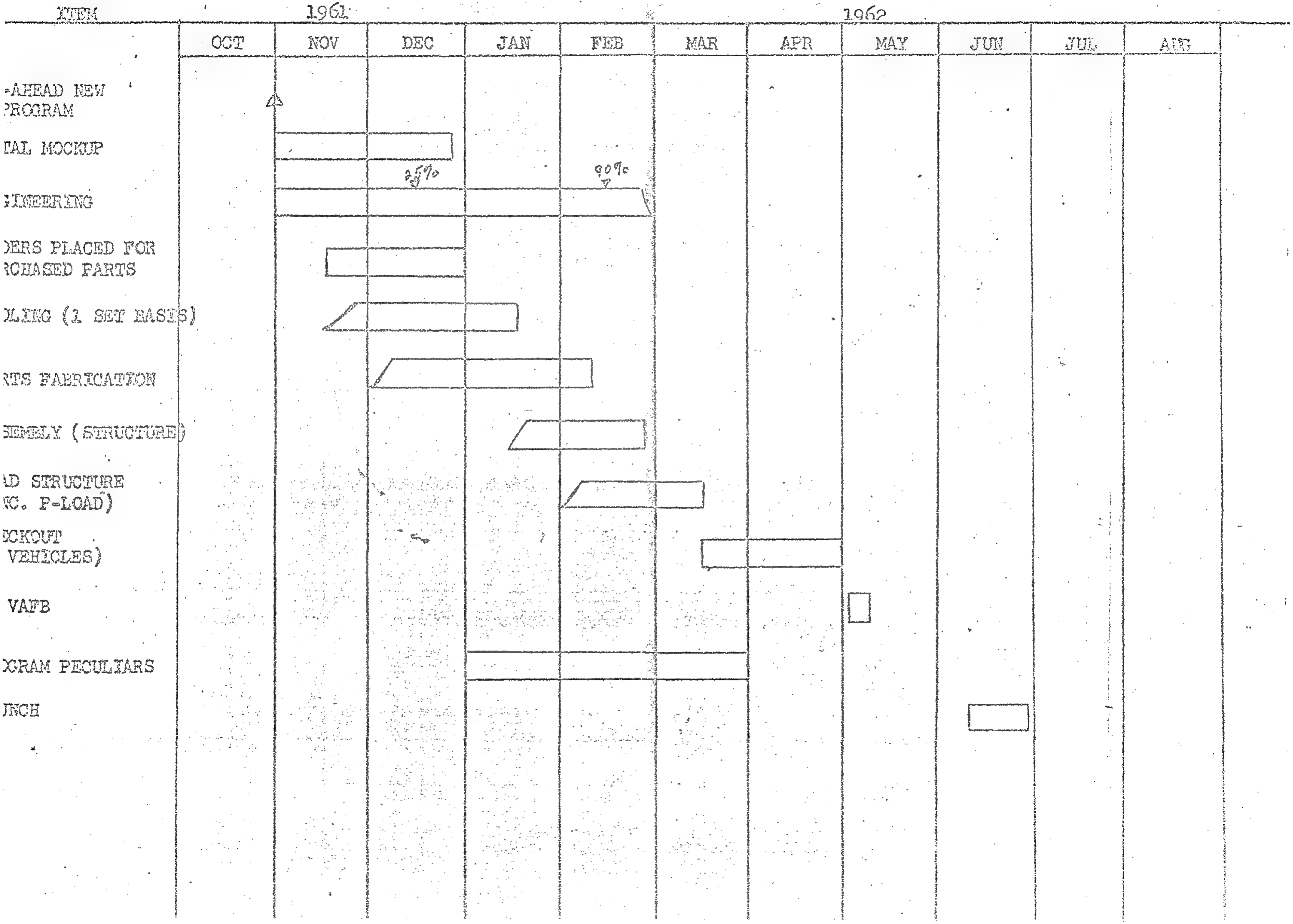

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FM HQ USAF WASH DC
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ACTION SSZK
1961 NOV 22 PM 8:40
INFO SSZ

UNCLAS FR AFSPM 80799
REF BRIEFING COL EVANS THIS HQ 17 NOV 61. SUBJECT AGENA B.
FOLLOWING PROCUREMENT GUIDELINES WILL PERTAIN. THIS MSG IN SIX PARTS.
MATTERS PERTAINING TO ORGANIZATION AND PROGRAM MANAGEMENT ARE SUBJECT OF SEPARATE COMMUNICATION. PART I. DELEGATION OF PROCUREMENT AUTHORITY. THE SPECIAL DELEGATION OF AUTHORITY REQUESTED REFERENCED BRIEFING IS NOT CONSIDERED ESSENTIAL. AFSC PROCUREMENT REVIEW IS CONSIDERED TO BE ADVISABLE. LITTLE DELAY SHOULD ACCRUE THROUGH PROCEDURE PROPOSED BY AFSC DIRECTOR OF PROCUREMENT WHERE ON THE SPOT PROCUREMENT COMMITTEE REVIEW WILL BE MADE WHEN

PAGE TWO RJEZHQ 1118
NECESSARY. PART II. CONTRACT GUIDELINES FOR INCENTIVE CONTRACT (A) TARGETS. TARGETS MUST BE REALISTIC AND MUST BE SET AT AN EARLY POINT IN PERFORMANCE. SUGGEST THAT AF AND CONTRACTOR PAST EXPERIENCE AND LATEST AVAIL DATA BE USED IN SETTING COST AND PERFORMANCE TARGETS. WHERE COST TARGET CANNOT BE SET ON A SPECIFIC DOLLAR THEN A FLAT SPOT OR PLATEAU DOLLAR RANGE MAY BE USED. TARGET FEE WILL APPLY IN FLAT SPOT WITH INCENTIVES APPLYING ABOVE AND BELOW. (B) PROFIT RANGE. RANGE OF PROFITS SHOULD EXTEND IN EQUAL RELATIONSHIP UPWARD AND DOWNWARD FROM THE TARGET FEE AND MAY EXTEND TO THE FULL STATUTORY LIMIT. THE LATEST FEE NEGOTIATED WITH THIS CONTRACTOR ON A MAJOR PROCUREMENT SHOULD BE USED IN NEGOTIATING A TARGET FEE. (C) QUALITY AND PERFORMANCE SPECIFIED MUST BE ESSENTIAL. EXTRAORDINARY QUALITY OR PERFORMANCE MAY EARN INCENTIVE COMPENSATION ONLY IN RELATION TO ITS REAL VALUE TO THE AF. (D) MEASUREMENT. ASSURE ADEQUATE MEANS OF MEASUREMENT. MEASUREMENT ITEMS SHOULD BE THE FEWEST PRACTICAL NUMBER AND SHOULD BE KEY MEANINGFUL POINTS. WHERE NO TANGIBLE MEASUREMENT MEANS EXIST AND JUDGMENT TYPE EVALUATION MUST BE USED, JUDGMENT OF THE AIR FORCE WILL APPLY AND WILL DECIDE. (E) BALANCE OF INCENTIVE FORCES. INCENTIVE ITEMS PRESENTED IN 17 NOV BRIEF INCLUDED COST, DELIVERY AND

PAGE THREE RJEZHQ 1118 56428
PERFORMANCE. ITEMS SHOULD BE WEIGHTED SO AS TO PROVIDE A BALANCE OF FORCES DESIGNED TO ENCOURAGE THE CONTRACTOR TO REMAIN ON A DESIRED EFFORT COURSE. REFERENCED BRIEFING ALLOCATED 500/0 TO COST AND ONLY 25 PER CENT TO DELIVERY AND PERFORMANCE. IN THIS CASE, CONSIDERING THE IMPORTANCE OF PERFORMANCE AND DELIVERY, IT IS SUGGESTED THAT AN APPROXIMATELY EQUAL SPLIT OF ALL THREE FACTORS WOULD BE MORE NEARLY APPROPRIATE. RELIABILITY CONSIDERATIONS SHOULD BE INCLUDED AND IF AT ALL POSSIBLE FINAL OR LAUNCH RESULTS SHOULD BE INCLUDED. (F) OTHER CONTRACTS. THE CONTRACTOR MUST ASSURE THAT PERFORMANCE STANDARDS ON OTHER DEFENSE CONTRACTS WILL NOT BE DECREASED IN ORDER TO CONCENTRATE ON ACHIEVEMENT OF INCENTIVE PAYMENTS UNDER THIS CONTRACT. PART III. PROFIT LIMITATIONS. ASPR ADMINISTRATIVE LIMITS ON PROFIT ARE WAIVED FOR THIS PROCUREMENT. STATUTORY LIMITS WILL APPLY. PART IV. PERTINENT TERMS OF THE CONTRACT WILL BE REVIEWED BY THIS HQ PRIOR TO FINAL EXECUTION. IT IS SUGGESTED THAT AN APPROPRIATE PRESENTATION BE MADE. ADVISE US SUFFICIENTLY IN ADVANCE TO PERMIT ARRANGEMENTS. PART V. THE ACCOUNTING SYSTEM MUST ASSURE PROPER SEGREGATION AND ALLOCATION OF COSTS TO THE PERTINENT CONTRACT. SUGGEST ACCOUNTING SYSTEM PROVIDE COST DATA WHICH WILL BE USEFUL IN FOLLOW ON

PAGE FOUR RJEZHQ 1118
PROCUREMENTS. PART VI. FACILITIES CONSIDERATIONS: (A) DURING NEGOTIATIONS ASSURE THAT NO ITEMS PROPERLY CHARGEABLE TO FACILITY CONTRACTS ARE INCLUDED IN THE TARGET PRICE OF THE INCENTIVE CONTRACT. (B) AFTER THE INCENTIVE CONTRACT IS ESTABLISHED CONSIDER FACILITY MATTERS SO THAT NO ITEMS ANTICIPATED UNDER THE INCENTIVE CONTRACT ARE CHARGED AGAINST THE FACILITY CONTRACT. (C) NEW FACILITY REQUIREMENTS AND COSTS MUST BE FIRMED UP SOON. LATER FACILITY REQUIREMENTS WHICH CONTRIBUTE TO THIS PROGRAM, ALTHOUGH CHARGED UNDER THE FACILITY CONTRACT, SHOULD BE CONSIDERED IN LIGHT OF THEIR EFFECT ON THE INCENTIVE CONTRACT AND APPROPRIATE ADJUSTMENTS MADE. (D) IN ESTIMATING COST TARGETS ANTICIPATE THE INCREASE EFFICIENCY AND EFFECTIVENESS TO BE PROVIDED BY FACILITIES NOW BEING REQUESTED.
BT
22/2326Z NOV RJEZHQ

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office
Los Angeles 45, California

November 24, 1961

Reply to
Attn. of: Lt./Col. E. F. Blum

Subject: Agena D Structural Criteria

To: Lockheed Aircraft Corporation
Missile and Space Company
P. O. Box 504
Sunnyvale, California

ATTN: L. K. Edwards, Manager
Agena D Systems Engineering & Reliability

1. The Agena D structural criteria has been loosely defined as "capable of supporting the most severe of present programs". ~~This criteria may be insufficient to handle some mission peculiar~~ assemblies which may wish to use the Agena D. The present criteria is based on the use of long nose fairings or hammerhead nose configurations with minimum weight. In order to cover relatively long but heavy mission assemblies, we request the following configuration be considered in the design.

2. A configuration made up of a homogeneous mass weighing 4500# with a 60" diameter cylindrical section approximately 145" long, topped by a conical nose of 35° total included angle. The nose cap of this configuration has a 6" radius and is faired into the cone at its point of tangency.

3. The booster and trajectory to be used in the structural capability is an Atlas flown approximately as for Midas with the booster apogee at 100 n. mi.

E. F. Blum
Lt. Col. USAF

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HEADQUARTERS
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Andrews Air Force Base
Washington 25, D.C.

24 NOV 1961

REPLY TO ATTN OF: SCGN

SUBJECT: Instructions on Standard Agena D Program

TO: SSD (Maj Gen O. J. Ritland)
Air Force Unit Post Office
Los Angeles 45, California

Dear Ossie

1. This confirms the directions given you verbally on 20 November 1961, subsequent to my meeting with Dr. Charyk on the Standard Agena D program and rescinds previous instructions contained in our 6 November 1961 letter. The following decisions were reached at this meeting:

a. Col Henry B. Kucheman, Jr. is designated as the SPD reporting directly to you.

b. A single point of contact in General Holzapple's organization will be established and communications are authorized with that office for actions required in Hq USAF or at the DoD level.

c. Arrangements will be made between the SPD and the AFPR (Col Voyles) which authorize the AFPR to make decisions binding on the contractor operating for and under the control of the SPD.

d. The Lockheed cost proposal will be carefully examined and evaluated by SSD.

e. The incentive formula for the Agena D contract is being worked on by General Thurman and will be used as the basis for negotiating the contract.

2. I would like for you to present to me as soon as possible a document containing the management arrangements as specified herein; procedures; the principles of operations to be used by the SPD with the contractor, Hq AFSC, Hq USAF, and DoD bearing in mind expedited channels and clear lines of responsibility and authority, and a minimum reporting system covering schedules, financial status, and major milestone achievements.

B. A. Schriever

B. A. SCHRIEVER
General, USAF
Commander

Copy to: Commander, DCAS

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27 Nov 61

MEMORANDUM FOR RECORD

Subject: Agena "D" Conference

1. A conference was held at Sunnyvale, Calif. on 7 November relative to the Agena "D" program. The following people were in attendance:

Dr. J. V. Charyk	(SAFUS)	Mr. C. L. Johnson	(LAC)
General B. A. Schriever	(AFSC)	Mr. D. Haughton	(LAC)
LtGen H. M. Estes	(DCAS)	Mr. H. Brown	(LMSC)
MajGen O. J. Ritland	(SSD)	Mr. Willis Hawkins	(LMSC)
MajGen R. E. Greer	(SSD)	Mr. D. Gribbon	(LMSC)
BrigGen R. D. Curtin	(SAFMS)	Mr. Fred O'Green	(LMSC)
Two Civilians (Dr. Charyk's Office)		Mr. Roy Weller	(LMSC)
Col C. Butcher	(SAFUS)	Mr. H. Hibberd	(LMSC)
Col John Martin	(SAFMS)		
Mr. Lou Meyer	(AFABF)		
Col Harry L. Evans	(SSD)		
Col James Voyles	(AFPR, LMSC)		

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2. The meeting was opened by Mr. Haughton who announced that they were pleased to be host to the group and that they were very interested in responding to the Air Force requirement for the Agena "D" on an accelerated time scale. Mr. Haughton also announced that as a measure of their interest and support that LMSC would be provided a new building by Lockheed Corporation. This new building would be available in September or October 1962.

3. Dr. Charyk spoke for the Air Force stating that the Agena performance had been poor, that in his judgment the key to improved performance was the standard Agena and that the purpose of the meeting as far as he was concerned was to have a full, frank discussion of the pros and cons of the technical aspects as well as the schedule problems associated with the Agena "D." He stated that he wanted to reach certain agreements by the end of the day as to a course of action on the Agena "D." One of the civilians attached to Dr. Charyk's office suggested that we insure that the focus on the Agena "D" should not sidetrack all of the other effort which was immediately ahead in the satellite business.

4. The next speaker on the agenda was Mr. Hawkins. He stated that he had analyzed and wished to respond to all parts of the C. L. Johnson report and to indicate what Lockheed intended to organize to accomplish the Agena "D" task. He made the following major points:

a. Lockheed wants to do what the Johnson Committee recommends.

b. They hope that the fast schedule will not jeopardize early reliability of the Agena "D."

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c. They wish to point out that the Agena "D" is intended to be a production engineering job and not an R&D vehicle.

Mr. Hawkins then discussed specific actions mentioned by Mr. Johnson and commented on them. These were:

a. Reduction of drawings

b. Methods of tooling

c. Intent to reach a production rate of five per month based on the first tooling to be available.

d. Improved vendor controls

e. Need for increased spares

f. Need for Systems Test Laboratory

g. Reliability as a line function

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Each of the above items generated quite a lot of discussion with no specific decisions being rendered. Following this presentation, Mr. Hawkins then presented the organization which Lockheed proposed. The organization was essentially a highly projectized one headed by Mr. Fred O'Green and made up of many of the best people in the Satellite Systems Division. Lockheed announced that these people would be quartered in Building 151 and implied that because of the very urgent schedule, certain of the Discoverer Program Office people would also be located in that building. Mr. Hawkins listed a series of fifteen rules of operation which were contained in the Johnson Committee report and added his interpretation to these rules of operation. Certain items were discussed and changes were made by mutual agreement.

5. The next speaker was Colonel Evans who stated the SSD concerns with the accelerated Agena "D" program and with the information which had been presented by LMSC. These concerns were three:

a. The proposed phasing schedule by LMSC would impose an unacceptable workload on Lockheed.

b. The original concept of the standard Agena was being modified by Lockheed to conserve time.

c. The fifteen rules of operation had been carefully interpreted to insure that sufficient information was made available by the Agena "D" Project Office to fulfill the needs of systems engineering organizations other than Lockheed who has over-all systems engineering responsibility.

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6. After further discussion on these points, Dr. Charyk announced the following decisions. It was agreed to proceed with the Agena "D" program with a target launch date of 28 June 1962. That we would proceed if possible on a CPIF type contract structure on the initial vehicles to be followed by a fixed price or fixed price incentive contract as soon as possible. That the project would be isolated physically and an acceptable cost accounting system would be provided by Lockheed, that the standardized concept would be the major objective of the program. Dr. Charyk indicated that within ten days, he wished to see in Washington the following documents:

a. An agreed to work statement

b. An outline of the contract structure to include incentive provisions.

c. An agreed to set of ground rules insofar as operational procedures are concerned.

d. A program by program impact analysis to include estimates of cost, risks involved, and a recommended schedule,

e. Organizational structure within the Air Force.

f. A statement of how the needs of the various users of the Agena "D" are to be fulfilled.

Although not specifically stated by Dr. Charyk, his conversation implied that the phasing of the Agena "D" would be as follows:

Discoverer	As soon as possible
Prog 101B, 201	When new vehicles are bought for those programs
Prog 102	To be further examined
621A Vela Hotel Cue Ball BOSS	Will use Agena "D"
All other new programs launched after Jan 63	Will use Agena "D"
MIDAS	To be determined when the MIDAS program is determined.

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7. Meeting adjourned at 1700.

8. Inclosed is a Summary of Instructions by Dr. Charyk as rendered by LMSC.

HARRY L. EVANS
Colonel, USAF
Deputy for Satellite Systems

1 Atch
Summary of Instructions Issued by Dr. Charyk in Agena D Meeting on 7 Nov 61

~~SECRET~~ CONFIDENTIAL

LOCKHEED AIRCRAFT CORPORATION
MISSILES and SPACE DIVISION

INTERDEPARTMENTAL COMMUNICATION

DATE November 9, 1961

TO F. W. O'Green ORGN. 68-01 FACILITY 1
J. Plummer (R. C. Kent)

FROM W. M. Hawkins ORGN. 60-01 FACILITY 1 EXT. 25081

SUBJECT: SUMMARY OF INSTRUCTIONS ISSUED BY DR. CHARYK IN AGENA D MEETING ON NOVEMBER 7, 1961

DIRECT INSTRUCTIONS BY DR. CHARYK:

1. AFSSD and LMSC should get immediate agreement on Work Statement (assumed to be simple version recommended by C. L. Johnson report).

2. AFSSD and LMSC should get immediate agreement on contract arrangement. Some form of incentive is encouraged strongly.

3. AFSSD and LMSC must agree on ground rules for operation. (Assumed to be agreed upon interpretation of Johnson report rules.)

4. Impact of Agena D on programs other than Discoverer to be decided program by program including estimate of probable follow-on potential of each.

5. AF must decide on Program Director and organization.

6. Need summary of operating principles to send to DOD and NASA in order to prevent interference outside of AF control.

7. Need AF and LMSC concurrence on ground rules for assessment of contract incentives.

8. AF wants to proceed on Agena D-Discoverer on schedule proposed in Johnson report with the approximate schedule as proposed by LMSC for the 12 Agena D's.

9. AF wants LMSC not to submerge the concept of separate "sell off" for Agena D in the acceleration of Discoverer. Agena D program must maintain identity and aim for completely separate production and checkout prior to use by individual programs.

10. Aim for some form of incentive contract implies strongly:

    a. Better cost allocation system
    b. Better cost control
    c. Better cost definition

11. Cost reporting on only total expenditures not enough. LMSC and AF should seek system that:

    a. Utilizes simplest possible breakdown of cost
    b. Permits earliest possible recognition of ultimate completion costs of program

12. Lifeboat program for Agena B-Discoverer should be started immediately for earliest possible inclusion in Discoverer program.

13. Early schedule study must be made to be sure that enough Agena B's exist for Discoverer back-up and that these can be accelerated to fill scheduled flight positions of Agena D-Discoverer if D program runs into technical problems.

Dr. Charyk expects a personal report to be delivered to him by AFSSD and LMSC within 10 days (assumed to be November 17) covering Items 1, 2 & 3 above.

This summary serves as an instruction to both the Agena D and Program Management Directors to initiate and pursue their respective programs. Best of luck--I assure you that all of us in the Space Systems Division are behind you and that the rest of LMSC and the corporation officers stand ready to help when called upon.

Willis M. Hawkins

Willis M. Hawkins
Vice President and General Manager
Space Systems Division

WMH:pb

cc: D. J. Haughton
    C. L. Johnson
    L. E. Root
    H. J. Brown
    D. J. Gribbon
    R. Weller
    R. D. King
    L. A. Carter

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OFFICE OF THE AIR FORCE PLANT REPRESENTATIVE
UNITED STATES AIR FORCE
LOCKHEED MISSILES AND SPACE COMPANY
SUNNYVALE, CALIFORNIA

REPLY TO ATTN OF: RWRM

28 Nov 61

SUBJECT: Memo of Understanding

TO: Colonel Henry B. Kucheman
Agena D System Program Director

30.81

1. This office recognizes the need for absolute access control to be used for the Agena D program. At the same time, it is advantageous that the resources of the AFPRO be used fully to assure satisfactory completion of the intended work. Toward this end, selected individuals from the AFPRO are designated contact personnel for their responsible functional areas and will have access, as the occasion requires, to perform the tasks assigned. Also, there will be requirements to cover a three-shift operation especially in the area of quality control. There are obvious times when these contact personnel may not be available to perform a specific task; this may require the designation of "backup" personnel. Such individuals will be designated by the AFPR or his Deputy as the occasion arises.

2. For all intents and purposes, Mr. Kerrwin Hagerty is designated the AFPRO team leader. He will maintain an office in the Air Force Program Management office, Building 151, and be the immediate point of contact for all AFPRO personnel. In addition, a secretary, Mrs. Rosaline Genovia, has been assigned for duty at the Agena D Air Force office supported by other contact personnel. This office may be considered an extension of the AFPR office located in Building 104 performing complete contractor surveillance as required by Air Force Procurement Instruction. Although not all inclusive, a list is attached which indicates the functional areas, the tasks to be performed and contact personnel designated.

3. In addition, it is anticipated that the AFPR and his Deputy may have occasion to be present at the Agena D complex but no special provisions are required. There is a need, however, that a specific area be designated for access to engineering data and program status. This must be given early consideration to meet the requirements not only of the military program directors but the LMSC program managers (Discoverer, Midas, etc) as well.

James H. Voyles, Jr.
JAMES H. VOYLES, JR.
Colonel, USAF
AF Plant Representative

FUNCTIONAL AREA - CONTRACT ADMINISTRATION
AFPRO Contact Personnel - Mr. Kerrwin Hagerty

TASK TO BE PERFORMED	BY SPO	BY AFPRO
Vouchers		OPI
Spare Parts	Coordination	OPI
Approve Subs & P.O.s to Vendors	As Required	OPI
Price Analysis	Participant for Fact Finding PCO	OPI
Bailed Property	Coordination	OPI - property
CCNs (Negotiate)	Issue Only	OPI
Overtime	OPI Limits/Ceilings	Approve
Maintain & Protect Government Property		OPI
Contract Funding	OPI	Coordination
1097s	Action	OPI Review/ Recommendation
GAO, OSI, & FBI	Information	OPI
Tax Exempt Certificate		OPI

FUNCTIONAL AREA - PLANS AND MANAGEMENT
AFPRO Contact Personnel - Mr. Russell Dick

TASK TO BE PERFORMED	BY SPO	BY AFPRO
Secretary		X
Transportation		X
Office Supplies	Contractor will Supply	
Security (a) Internal	X	
(b) Industrial		X
(c) Visitors	X	
(d) Documents (Release of Info)		X
(e) Need to Know (Personal Contact)	Coordination	OPI
(f) Safe Custodian		Secretary
Mail Services		As Required
Reservations, etc.	X	
Badging Requests		X
Personnel Clearances		X
Time & Attendance Record (Secretary)		X
Reference Library		X
Communications (AF Accounting, telephone, TWX)		X

FUNCTIONAL AREA - MATERIEL MANAGEMENT
AFPRO Contact Personnel - Mr. William Bense

TASK TO BE PERFORMED	BY SPO	BY AFPRO
Property Administration		OPI
GFP	Coordination	OPI Approval
Spares Support	Requirements	OPI
Maintenance (Repair)	Coordination	OPI
Transportation (All Modes)		OPI
Facility Expansion Modernization & Replacement	Approval	OPI Review/ Recommendation
Packaging and Preservation		OPI
Plant Clearance		OPI
Procedures and Standards	Information	OPI
Priorities and Allocations	Coordination	OPI
Conservation Cost Control - Scrap		OPI

FUNCTIONAL AREA - PRODUCTION
AFPRO Contact Personnel - Mr. G. H. Weaver

TASK TO BE PERFORMED	BY SPO	BY AFPRO
ATPMs	OPI Process/Approve	Coordination & Recommendation
FCRs	Information	OPI
Plant Layout & Equipment Utilization	Coordination	OPI
Manpower	OPI	Coordination (before the fact)
Overtime	OPI Allowable Limits	Approving Expenditure
Make or Buy Plan	Approval	Coordination
Make or Buy (Execution of Plan)	Information	OPI
Production Status	OPI	Recommendation
Technical Direction	OPI	Information
ECPs	OPI	Coordination/ Recommendation
Value Engineering	Requirements	OPI
Labor Relations	Information	OPI
Sub-contractors Vendors	Information	OPI
GPAE		OPI
CCNs	Issue	Support ACO
AFPRO Boards & Committees	Membership As Required	OPI

FUNCTIONAL AREA - QUALITY CONTROL
AFPRO Contact Personnel - Mr. William O'Connell

TASK TO BE PERFORMED	BY SPO	BY AFPRO
Inspection	Information As Required	OPI
Acceptance (DD 250)	Coordination	OPI
Procedures and Standards	Information	OPI
Reports		As Required
Investigations (Reverse Depending on Situation)	Coordination	OPI
Ground Safety		OPI
Materiel Review Board	(Support) Member-Coordination	(Prime) Member
Reliability	Requirements	OPI
Specifications	OPI	Coordination & Recommendations

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DE RJEZHQ 389
P 301909Z
FM HQ USAF WASH DC
TO RJEZFF/AFSC ANDREWS AFB MD
INFO RJWZBK/SSD LOS ANGELES CALIF
BT
~~SECRET~~ FROM AFSDC-F 52350

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REC'D
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ACTION AFBMD
SSZA
1961 NOV 30 PM 5:59
INFO SSZ

REF BRIEFING COL EVANS THIS HQS 17 NOV 61, SUBJECT AGENA D. THIS MESSAGE IN EIGHT PARTS. PART I. PROGRAM DIRECTION CONTAINED IN HQ USAF LTR TO AFSC SUBJECT STANDARDIZED AGENA D SPACE VEHICLE DTD 27 SEP 61 AND HQ USAF LTR TO AFSC, SAME SUBJECT, DTD 26 OCT 61 IS SUPERSEDED BY DIRECTION CONTAINED HEREIN. NO ACTION TO BE TAKEN RELATIVE PROCEDURES CONTAINED IN DDR AND E 4 OCT 61 MEMO ATTACHED ABOVE REF 26 OCT 61 LTR. PART II. PROCUREMENT GUIDELINES WILL BE IN ACCORDANCE WITH HQ USAF (AFSPM) MESSAGE TO AFSC DTD 22 NOV 61. PART III. FOLLOWING ARE PROGRAM GUIDELINES: (A) AGENA D TO BE PHASED INTO

PAGE TWO RJEZHQ 389
DISCOVERER ASAP. (B) AGENA B TO BE USED AS BACK-UP FOR INITIAL AGENA D FOR DISCOVERER TO PROTECT LAUNCH DATES. (C) AGENA D TO BE PHASED INTO ALL NEW PROGRAMS LAUNCHING AFTER 1 JAN 63. (D) AGENA D TO BE PHASED INTO PROJECTS 101B AND 201 ON NEXT VEHICLE ORDER. (E) AGENA D TO BE PHASED INTO PROJECT 102 AFTER INITIAL FOUR VEHICLES. (F) PHASING AGENA D INTO MIDAS TO BE EVALUATED AND RECOMMENDATIONS PRESENTED TO HQ USAF ASAP. (G) INITIAL AGENA DS WILL CARRY DX RATING OF USING PROGRAM. DECISION RE: DX RATING FOR FOLLOW-ON TO BE MADE IMMEDIATE FUTURE. (H) SPECIAL LMSC ENGINEERING SYSTEM TO BE AS DISCUSSED IN VARIOUS MEETINGS. PROGRAM DIRECTOR WILL ESTABLISH DRAWING, SPECIFICATION AND PROCUREMENT DATA REQUIREMENTS. THIS TO BE NOT LESS THAN THAT REQUIRED FOR POSSIBLE FPI CONTRACT IN FUTURE. (I) AN EARLY AND FINAL CONFIGURATION FREEZE TO BE MADE. CHANGES RESULTING FROM DEVELOPMENT OR USING PROGRAMS TO BE DETERMINED AND APPROVED BY AGENA D PROGRAM DIRECTOR AND USING MILITARY PROGRAM DIRECTORS. (J) LMSC ENGINEERS TO BE LOCATED IN SECURE AREAS IMMEDIATELY ADJACENT TO TOOLING AND MANUFACTURING AREA. (K) RAPID DRAWING RELEASE SYSTEM FROM PROJECT ENGINEER'S APPROVAL TO MFG GROUP WILL BE ESTABLISHED. DRAWINGS TO BE SUITABLE FOR USE BY ALTERNATE CONTRACTORS IF REQUIRED. (L) AIR FORCE PROJECT PERSONNEL TO WORK CLOSE ENOUGH TO LMSC PROJECT

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PAGE THREE RJEZHQ 389
ENGINEER TO PRECLUDE NEED FOR FORMAL MEETINGS. (M) REASONABLE OVERTIME MAY BE USED AS DETERMINED BY LMSC AND APPROVED BY AGENA D PROGRAM DIRECTOR. (N) INTERCHANGEABILITY OF FIRST FOUR VEHICLES MAY BE LIMITED TO MAJOR STRUCTURAL AND EQUIPMENT ITEMS. FINAL DETERMINATION OF CONFIGURATION WILL BE MADE BY AGREEMENT BETWEEN AGENA D PROGRAM DIRECTOR, THE USING MILITARY PROGRAM DIRECTOR AND LMSC. (O) NECESSITY FOR ENGINEERING ANALYSIS REPORTS TO BE DETERMINED BY AGENA D PROGRAM DIRECTOR. (P) QUALIFICATION STANDARDS AND SPECIFICATIONS ARE TO BE DETERMINED AND AGREED TO BETWEEN LMSC, THE AGENA D PROGRAM DIRECTOR AND THE USING MILITARY PROGRAM DIRECTORS. PART IV. (A) AGENA D MANUFACTURING COMPLETION SCHEDULE FOR INITIAL TWELVE VEHICLES - 1962 MARCH (1), APRIL (1), MAY (2), JUNE (2), JULY (2), AUGUST (3), SEPT (1). (B) LAUNCH DATES FOR INITIAL TWELVE AGENA D VEHICLES 1962 JUNE (1), JULY (1), AUGUST (1), SEPT (2), OCT (3), NOV (1), DEC (1); 1963 JAN (1), FEB (1). PART V. FUNDING FOR AGENA D PROGRAM, DISCOVERER PROGRAM AND 4TH DISCOVERER LAUNCH PAD WILL BE COVERED BY SEPARATE COMMUNICATIONS. PART VI. DOCUMENTATION UNDER AFR 80-2 AND AFR 375-4 WILL NOT BE REQUIRED. A PROGRAM PLAN SHOWING MAJOR MILESTONES, SCHEDULES, LAUNCH DATES AND LMSC AND SSD ORGANIZATION AND PROCEDURES WILL BE SUBMITTED TO HQ USAF ATTN: AFSSV-EQ

PAGE FOUR RJEZHQ 389
BY 15 DEC 1961. A BRIEF MONTHLY REPORT SHOWING PROGRESS AND HIGH LIGHTING PROBLEM AREAS WILL BE SUBMITTED TO HQ USAF BEGINNING 1 JAN 1962. PART VII. (A) TOOLING AND MANUFACTURING TEST EQUIPMENT WILL BE PROVIDED FOR PRODUCTION RATE OF 3 TO 5/MONTH. FINAL DECISION ON RATE TO BE MADE AFTER ANALYSIS LMSC RESPONSE TO SSD REQUEST FOR PROPOSAL DUE MID-DECEMBER. (B) ACTUAL PRODUCTION WILL BE PER CONTRACT SCHEDULE. (C) FY-62 AND FY-63 FACILITY REQUIREMENTS FOR INITIAL TWELVE VEHICLE PROGRAM AND SUSTAINING RATE OF 3 TO 5/MONTH WILL BE IDENTIFIED ASAP AND FORWARDED TO HQ USAF. PART VIII. INITIAL CONTRACT WILL INCLUDE STUDY USE AGENA D WITH TITAN III BOOSTER. FUNDS FOR THIS STUDY WILL BE MADE SUBJECT OF A SEPARATE CONTRACTUAL AND FUNDING LIMITATION. RESULTS OF STUDY WILL BE INCLUDED IN TITAN III SYSTEM PACKAGE PROGRAM TO BE SUBMITTED THIS HEADQUARTERS LATE JANUARY 1962.
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30 NOV 1961

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INGL 8513 V SMON 7125 11-29-61 SENT 11-30-61 929AM

TO LOCKHEED AIRCRAFT CORP WILLIAM PARKER DEPT 62-41 LMSC
SUNNYVALE CALIF
FROM DOUGLAS AIRCRAFT CO INC M W HUNTER
INFO AFSSD MAJOR R R MOORE SSZD/CAPT J H JOHNSON SSVXE INGLEWOOD CALIF
LOCKHEED AIRCRAFT CORP SAM ARAKI DEPT 62-41 SUNNYVALE CALIF
BT
~~C O N F I D E N T I A L~~
IN REPLY REFER TO.. A2-260-TSP-459
SUBJECT.. FLIGHT ESTIMATES OF THOR-AGENA B PERFORMANCE

315

DURING THE MEETING AT DAC ON NOVEMBER 20, 1961 WITH SAM ARAKI OF LOCKHEED MISSILES & SPACE COMPANY, IT WAS AGREED THAT DAC WOULD PROVIDE FLIGHT ESTIMATES OF THOR-AGENA B PERFORMANCE WITH THE UPRATED 170K BOOSTER ENGINE FOR THE NASA PROGRAM.

THE FOLLOWING VALUES OF PROPELLANT UTILIZATION AND THRUST ARE BASED ON CURRENT PERFORMANCE FOR THE "DISCOVERER" PROGRAM WITH THE 167K ENGINE.

1. A THRUST INCREMENTAL INCREASE OF APPROXIMATELY 2500 POUNDS CAN BE EXPECTED THROUGHOUT FLIGHT, BRINGING THE NOMINAL VALUE TO 172.5K FOR THE UPRATED ENGINE.
2. THE PROPELLANT UTILIZATION OF 99.5 PERCENT /50 PERCENT CONFIDENCE/ APPEARS TO BE MORE REALISTIC THAN THE 99.6 PERCENT FIGURE QUOTED IN TAD 019.

IT SHOULD BE NOTED THAT NO CHANGES TO TAD 019 WILL BE MADE AT THIS TIME DUE TO THE UNCERTAINTIES IN ENGINE PERFORMANCE STIMATES.
BT
~~C O N F I D E N T I A L~~
SCP-4

CORR LAST LINE LAST WORD ESTIMATES

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SSVE SSVXT
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FM OSAF
TO RJEZFF/AFSC ANDREWS AFB MD
RJWZPK/DCAS LOS ANGELES CALIF
BT

~~S E C R E T~~ FROM SAFS 83174

THIS MESSAGE IN THREE PARTS. PART I. REF SAFS 92454, 9 AUG 61, AND SAFS 68264, 6 OCT 61. THE THOR/AGENA VEHICLES IN REFERENCED MESSAGES ARE ASSIGNED TO THE DISCOVERER PROGRAM. THIS ACTION BRINGS VEHICLE PROCUREMENT FOR DISCOVERER UP THROUGH VEHICLE NO. 1136. Disc 52

PART II. IT IS DIRECTED THAT APPROPRIATE ACTION BE TAKEN TO PROTECT DESCOVERER VEHICLES 1137 THRU 1146. THE SCHEDULE WILL BE 3 SEPT, 3 OCT, 2 NOV, 2 DEC. THE AGENA D WILL BE UTILIZED, FOR THESE ADDITIONAL TEN DISCOVERERS.

3/6

PAGE TWO RJEZHQ 402

PART III. IT IS DIRECTED THAT NECESSARY ACTION, EXCEPT AWARDING CONSTRUCTION CONTRACTS, BE TAKEN TO (1) MODIFY DISCOVERER LAUNCH PADS TO PROVIDE FOR AGENA D; (2) MODIFY DISCOVERER CHECKOUT COMPLEXES TO PROVIDE FOR AGENA K; (3) MODIFT 75-1-2 PAD TO PROVIDE FOR DISCOVERER /AGENA D CAPABILITY. AUTHORIZATION TO AWARD CONSTRUCTION CONTRACTS WILL BE GIVEN ASAP PENDING APPORTIONMENT.
SCP-3.
BT
04/2209Z DEC RJEZHQ

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4 Dec 61

SSG

Deputy for Agena

Deputies and Chiefs of Major Staff Offices

1. Reference is made to SSG memorandum 20 November 1961, Establishment of Project Office 662A (SSGD). Announcement is made of the transfer of the functions, personnel, and personnel authorizations of SSZA to SSGD, effective immediately. SSGD is designated the Deputy for Agena and is assigned responsibility for all Agena activities formerly assigned to SSZ together with Project Office 662A responsibilities.

2. Within SSGD, the people primarily assigned to accomplish the Agena D program will be organized into a separate office and will have the Agena D program as their primary responsibility. These individuals may at the option of the Director, 662A, be given additional duties in the remainder of the Agena work assigned to SSGD.

s/ Gen Ritland

SSGD/Col Kucheman/dd

for Gen R's signature

27 Nov 61

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO ATTN OF: SSZDB/Maj Moore/R&D 4061

SUBJECT: Agena D/DM-21 Interface

DEC 18 1961

TO: SSGD

1. The Discoverer Directorate has been informed by DAC that an apparently unilateral design change has been made by LMSC in the booster-second stage interface on the Discoverer configuration. The effect of this change is to prevent interchangeability of the Agena D and the Agena B on the DM-21.

2. Non-interchangeability of the Agena B and Agena D cannot be tolerated in the Discoverer Program for the following reasons:

a. The acceleration of the 1962 launch schedule has precluded any booster stock piling at VAFB. There will be no flexibility in boosters which means that whatever booster is available will have to be used on the Agena to be launched be it a "B" or a "D".

b. The Discoverer schedule in June, July, and August is predicated on an intermix of Agena B's and Agena D's. The risk of not having the properly configured booster available is too great to delete Agena/DM-21 interchangeability.

c. Without interchangeability, any Agena B's that are replaced by Agena D's in the launch schedule will not be capable of being launched by the DM-21 at a later date.

3. It is requested that SSGD take immediate action to resolve this problem area since the boosters for launch in June are now in process and any delay in delivery will jeopardize the Discoverer launch schedule.

SIGNED

C. L. BATTLE
Colonel, USAF
Director
DISCOVERER Satellite System

cc: SSVX ✓

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

File
R&D
6-1 ✓
DISC

~~CONFIDENTIAL~~

SSZDB-9

MEMO ROUTING SLIP

NEVER USE FOR APPROVALS, DISAPPROVALS, CONCURRENCES, OR SIMILAR ACTIONS

1 NAME OR TITLE Gen R. [illegible]	INITIALS		CIRCULATE
ORGANIZATION AND LOCATION SSG	DATE		COORDINATION
2			FILE
			INFORMATION
3			NECESSARY ACTION
			NOTE AND RETURN
4			SEE ME
			SIGNATURE

REMARKS

Sir:

This is the 1st Cy of the Agena D Program Plan — All of the material used in the briefing is included within the write-up —

The planning factors used in the launch, DD-250 & final assembly tables are Data Table #9 as modified by Gen Greer & have been thoroughly reviewed.

FROM NAME OR TITLE Col H B. Kucheman	DATE 29 Dec 61
ORGANIZATION AND LOCATION SSX	TELEPHONE 3084

DD FORM 1 FEB 50 95 Replaces DA AGO Form 895, 1 Apr 48, and AFHQ Form 12, 10 Nov 47, which may be used. c48—16—74067-2 GPO

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HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO ATTN OF: SSGD

DEC 18 1961

SUBJECT: Instructions on Standard Agena Program

TO: AFSC (Gen Schriever)
Andrews AFB
Wash 25 DC

Dear Ben

3/92

1. The organization and operating procedures for the Standard Agena Program (Program 662A) have been established in accordance with the guidelines of your letter of 24 November.

a. Colonel Henry B. Kucheman, Jr., has been designated SPD.

b. LtCol Donald J. Keeffe is our contact with General Holzapple's organization.

c. Operating relationships have been established between my SPD, the AFPR, and the contractor.

d. Lockheed has been requested to submit a cost proposal in appropriate detail to permit adequate evaluation.

e. General Thurman has provided guidance for an incentive formula for the current Agena D contract.

2. A Management and Operational Procedures document has been developed which defines the management arrangements, procedures and principles of operation for the Standard Agena. A copy of this document is attached with attachments thereto reflecting the above-mentioned arrangements.

Original Signed
O. J. RITLAND

O. J. RITLAND
MAJOR GENERAL, USAF
COMMANDER

1 Atch
Mgt & Opnl Doc Agena D
w/6 Atch

Cy to: Commander, DCAS

PROGRAM 662A

MANAGEMENT AND OPERATIONAL PLAN

1. PURPOSE: To outline management arrangement and procedures, authorities and responsibilities, and operating level relationships to be utilized for Program 662A.

2. SCOPE: This plan will establish the principles for implementation of Air Force Program 662A and shall apply to personnel directly assigned to the program and to personnel performing support functions pertaining thereto. By mutual agreement, both the contractor and the Air Force will comply with the rules of operation defined herein.

3. GENERAL:

a. In general, the channels to be utilized in the management of Program 662A are essentially those already in existence for the management of designated systems. It must be recognized, however, that the objectives which have been established for the program cannot be accomplished in the time specified unless extraordinary treatment is given to Command decisions.

b. The following basic rules will apply to Program 662A:

(1) A DX priority is assigned to the Agena D Program.

(2) The engineering system shall be simplified, requiring only those drawings essential to tool, build and service the vehicle.

(3) 50% final configuration freeze shall be accomplished by 1 December 1961.

(4) Engineering and management level personnel for Program 662A shall be located in an exclusion area immediately adjacent to the tooling and manufacturing area.

(5) A rapid drawing release system (24 hours maximum) from the project engineer's approval to the manufacturing group shall be established.

(6) Funding shall be adequate and timely.

(7) Technical directive meetings involving large groups shall not be required. Air Force personnel shall work in close liaison with the LMSC Project Engineer so formal meetings are not required.

(8) Reasonable overtime will be approved. After-the-fact approval is not precluded. (Pursuant to clause A-37 of the contract.)

(9) Air Force approval of vendor selection shall be furnished on-the-spot at Sunnyvale. When single source procurement is necessary, justification of such action will be kept on file.

(10) Tooling shall be of the simplest type that will achieve interchangeability as stated in the basic Agena D specification. No tool drawings or outside approval of tooling will be required.

(11) Interchangeability on early Agena D's will be limited to major structural and equipment items. Doors, for instance, may require trim to fit.

(12) No engineering analysis reports will be required, since it is recognized that basic engineering reports furnish comparable data.

(13) The AF Director, Program 662A, and the LMSC Program 662A Director shall jointly review the specification problem and agree at the configuration conference to reduce the number involved to the minimum compatible with the minimum requirements for the construction of the Agena D.

4. PROGRAM 662A MANAGEMENT CHANNELS:

a. Higher Echelons. At each echelon in the command channel, a specific individual must be designated as Program 662A Action Officer. These individuals must be properly indoctrinated with the priority of the 662A Program and must be given authority to act for the Commander as necessary, to satisfy the requirements of the program. The technique of "management by exception" must be employed in order to afford Program 662A personnel the freedom to concentrate on the task to be accomplished. Attachment 1 is a suggested Command Channel diagram.

b. Program Office. Air Force Office organization and personnel are depicted on Attachment 2. The organization is configured to accomplish both contract administration and engineering tasks. The function of each organizational element is as follows:

(1) Director 662A -- Responsible for the overall Air Force management, (plans, organizes, coordinates, controls and directs), the efforts of functional agencies and industries participating in the 662A Program.

(2) Deputy for Programming, Procurement and Production -- Responsible to the Director, 662A Program for programming, procurement and production of the Agena D and its supporting AGE/STE.

(a) Programming Branch -- Responsible for establishing Agena D program requirements based upon the official Air Force Integrated Launch Schedules published by SSD; providing budget information to program offices pertaining to fund requirements for Program 662A and for availability of funds for release to the contractor.

(b) Procurement Branch -- Responsible for all aspects of the preparation, negotiation, definitization, release and management of contracts for Agena D.

(c) Production Branch -- Responsible for production schedules for Agena D vehicles, optional equipment and spare parts; for Agena D production progress surveillance; for facilities, inspection and acceptance.

(3) Deputy for Engineering -- Responsible to the Director 662A Program for planning, implementing, and surveillance over the engineering of the Agena D and its supporting AGE/STE.

(a) Aerospace Ground Equipment Branch -- Responsible for the Air Force management of contractor's engineering efforts during the design, development and test of Agena D aerospace ground equipment and special test equipment to insure the technical adequacy and timely delivery of the equipment to support Air Force programs. Also responsible that vehicle test philosophy and procedures and the checkout equipment are compatible and will during vehicle tests, provide adequate technical data to permit acceptance of the Agena D vehicle.

(b) Electronics Branch -- Responsible for the Air Force management of contractor engineering efforts during the design, development, and test of Agena D guidance and control and electrical power requirements to insure the technical adequacy and timely delivery of the equipment to support Air Force programs.

(c) Astro Vehicle Branch -- Responsible for the Air Force management of contractor engineering efforts during the design, development, and test of Agena D structures and propulsion systems to insure the technical adequacy and timely delivery of the equipment to support Air Force programs.

c. Relationship with AFPR:

(1) In recognition of the urgency attached to the satisfactory accomplishment of subject program, it is mutually understood that extraordinary and unusual technical and contractual relationships will be required. Consistent with the principle that the design, manufacture, and test of the end article within the critical program schedule can only be achieved through an unencumbered working relationship of engineering, procurement, inspection, manufacturing, logistics and support personnel, both the Air Force and LMSC Program Directors will have authority to make "on-the-spot" decisions both technical and contractual. With respect to contract administration, specifically identified tasks will be monitored by selected individuals as set forth in Attachment 4, Memorandum of Understanding between the SPD and the AFPR.

(2) The LMSC engineering and management personnel will be located in an exclusion area in Building 151, immediately adjacent to the final assembly and checkout (Attachment 3). The 662A Air Force Program Office will be located adjacent to this Agena D area in the exclusion area. Access to this Air Force office is available to using Program personnel from both LMSC and the Air Force without interfering with the LMSC Agena D effort. Liaison with the LMSC Agena D activity, by and on behalf of the Air Force and contractor personnel during the contract period, will be confined to a limited number of designated personnel who shall have free access to the entire activity at all times. Air Force access will be restricted to the 662A Program Office personnel and designated personnel from the AFPR Office. No other Air Force personnel, other than those specifically approved by the Air Force or LMSC Program Director, will be permitted access to the Agena D exclusion area.

(3) The resources of the Air Force Plant Representative Office will be utilized on a streamlined basis in carrying out contract administration functions to assure satisfactory execution of the Agena D Program. Acting for and under the control of the Director, Program 662A, the AFPR will make decisions relative to the 662A Program which are binding upon the contractor. Selected individuals from the AFPRO have been designated contact personnel for their responsible functional areas. These designated individuals will have free access to USAF Program 662A personnel and access to the exclusion area as necessary to perform the task assigned. The Memorandum of Understanding between the SPD and the AFPR (Col Voyles) is attached as Attachment 4.

d. LMSC Management Organization:

(1) The contractor has placed the full support of the Corporation behind the Agena D Program. Within the LMSC Space Systems Division, he has established the Agena D Directorate, with broad and all-encompassing authority. This authority includes full control over operations which are normally organized on a plant-wide functional basis, including manufacturing. The LMSC Agena D Program Director's organization is charted in Attachment 5 and his functions and responsibilities are as follows:

(a) Basic Objectives: Develop, design and manufacture the Agena D vehicle, establishing management controls over all aspects of the Agena D program contract.

(b) Functions and Responsibilities:

1. Serve as the principal representative of Space Systems Vice President and General Manager with the customer in negotiations and commitments for the Agena D Program.

2. Perform the complete systems engineering and reliability function for the Agena D Program, including the direction and control of all systems design, flight sciences, and test planning.

3. Perform all vehicle engineering for the Agena D Program, including all subsystem design for airframe and installations, propulsion, internal electrical systems, guidance and control, and selected communications and control equipment.

4. Design or provide the technical direction for the design of Agena D checkout equipment. Perform Agena D systems tests.

5. Manufacture of the Agena D vehicle, including electrical structure, and final assembly in accordance with Agena D drawings and specifications. Provide production planning, tooling, and production control. Direct and control any manufacturing services required by the program.

6. Plan, establish and maintain an effective inspection system to provide compliance with the contractual and design requirements of the Agena D program.

7. Establish a procurement system to provide for the analysis of material requirements, the procurement of material, control of inventories, and the receiving, storing and distributing of incoming shipments.

8. Establish and maintain a management control system encompassing both program controls and administrative controls for the Agena D Program.

(2) In addition to the foregoing responsibilities which have been delineated and agreed upon, the following will be established as firm requirements of LMSC relative to the management of the Agena D Program.

(a) The Contractor shall operate and maintain a logistics system which will ensure the availability of spare parts and the repair of generated reparables.

(b) The accounting system will provide for the segregation and reporting of basic vehicle development, product improvement, and logistics costs.

5. PROCEDURES:

a. Fiscal Procedures:

(1) Requirements - All Agena D requirements will be reflected on the official Air Force Integrated Launch Schedules. Space System Program Directors will be requested to sign-off for their requirements prior to SSD approval of the official Integrated Launch Schedule. The production rate of the Agena D will be geared to support the approved integrated launch requirement. Any program schedule changes which will adjust the Agena D production rate will be coordinated with the 662A Program Office. Allocation of the scheduled production will not be made prior to preliminary DD 250 acceptance.

(2) Budget - The 662A Program Office will prepare an annual financial plan and budget estimate to sustain an Agena D production rate to support program launch requirements. Upon approval of fiscal year funding requirements, the Comptroller (DCCB) will be responsible for obtaining necessary P-630 funds to provide orderly funding of the contract. These funds may be reimbursable funds or funds derived from approved programs.

(3) Programming - The 662A Program Office will provide the using program offices with a standard unit cost for the Agena D. These standard unit costs will include all cost associated with fabrication and test of the Agena D plus the cost of spares and product improvement. These unit costs will be revised as actual cost information is obtained. The standard unit costs provided will be utilized by all using space

programs in preparation of the yearly financial plan and budget estimates. Production, procurement and modification lead times will be provided the using programs by the 662A Program Office. The individual program costs of the Agena D will be programmed during the fiscal year in which delivery is scheduled. The program peculiar, and optional equipment plus installation, system checkout, and launch costs, will be funded separately by each program office. The costs associated with this effort will be programmed on an incremental basis. Any costs associated with slippage of established program schedules will be funded by the using program office. The initial unit cost estimate is 1.5M per Agena D at DD 250 acceptance.

(4) Procurement - Assuming that reimbursable funds are utilized throughout the Agena D Program, the DD 250 will be the action document to transfer program funds to the reimbursable fund account. At the time of DD 250 acceptance, the most current cost information will be utilized to establish the program funding changes for the vehicle. The DD 250 will be forwarded to the Comptroller (DDCA) who will effect the transfer of funds to the Program 662A account. Upon completion of the initial R&D contract, the accrued cost identified with manufacture of the vehicles will be used to determine the Agena D unit cost for future procurements. Any variance between the DD 250 cost and the actual cost will be cleared by transferring program and reimbursable funds by the Comptroller (DDCA). This procedure will be followed until a fixed price contract is negotiated for the Agena D, at which time the unit cost will become fixed.

b. Relationship with Other Programs:

(1) The Agena D Program has been established with the premise that only a minimum of effort not directly associated with the Agena D development will be required. The transfer of data to using programs is a necessary part of implementation of the Agena D Program and, therefore, an Agena D liaison group has been established within LMSC. This group is to act as the central point of information flow into and out of the Agena D technical area. To assist them, certain documents will be published and kept current. These include an advanced vehicle description, vehicle inboard profiles and layouts, and system and subsystem schematics. The design studies and analyses which are generated during the course of development and reported by in-house documentation shall also be available. The liaison group shall then have the responsibility of coordination with interested programs, receipt of their data

requirements, and transfer of the available documentation as is necessary to fulfill their requirements. The AF Agena D Program Office shall also act as a line of communication for those programs desiring information or contact with the LMSC liaison group. Normal practice shall be that data requests to specific format shall not be honored, however, distribution of in-house documents which contain the desired information shall be made as they become available.

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c. Reporting Procedures:

(1) One of the basic criterion to the expediting of the Agena D Program was the necessity that reports and data requirements be kept to an absolute minimum. Consistent with such a philosophy, Program 662A personnel must have access to the management controls to be utilized by LMSC personnel in the management of the Agena D Program. The Program 662A personnel, for instance, will attend the weekly program review meetings held by the LMSC Program Director. In turn, no specific periodic report will be submitted to higher headquarters by the Program Office. In lieu thereof, a status presentation will be given when deemed necessary by the Program 662A Director or requested by higher headquarters. It is intended, however, the Program Office will maintain a data file Program 662A in the general format required by the Systems Data Presentations and Reporting Procedures.

d. Product Improvement:

(1) After the initial effort in designing the Agena D, a follow-on provision will be made for a product improvement. A limited level of effort will be procured from LMSC under the Agena D contract. Changes, however, will be kept to an absolute minimum and will be provided in the basic vehicle only when several users will benefit.

e. Security:

(1) An attempt has been made to reduce the level of security classification of the Agena D as much as possible consistent with the desire to avoid unnecessary publication of data relative the Agena D on an unrestrained basis. A copy of the detailed classification guide is Attachment 6.

(2) Industrial Security cognizance of LMSC is assigned to Western Contract Management Region. The AFPR at LMSC will maintain close liaison on the scheduling of inspections and other requirements of LMSC's security agreement with the DOD.

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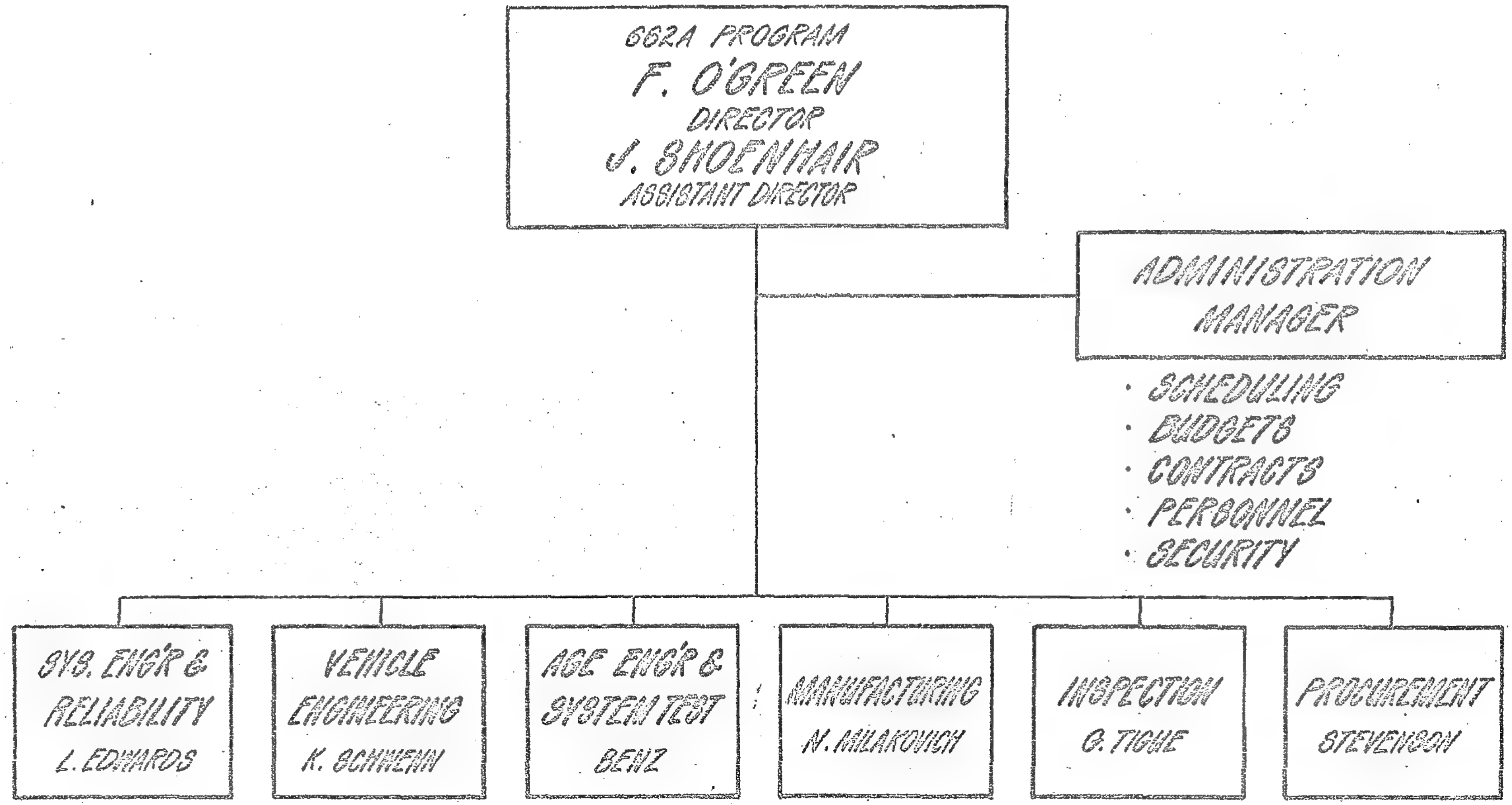
6 Atchs
1. Program 662A Mgt Channels
2. Organization SSD
3. Exclusion Area Bldg 151
4. Memo of Understanding
5. LMSC Organization
6. Master Security Classification Guide

3-9

LMSC ORGANIZATION
PROGRAM 662A



662A PROGRAM
F. O'GREEN
DIRECTOR
J. SHOENHAIR
ASSISTANT DIRECTOR

ADMINISTRATION
MANAGER

- SCHEDULING
- BUDGETS
- CONTRACTS
- PERSONNEL
- SECURITY

SYS. ENG'R & RELIABILITY
L. EDWARDS

VEHICLE ENGINEERING
K. SCHWENN

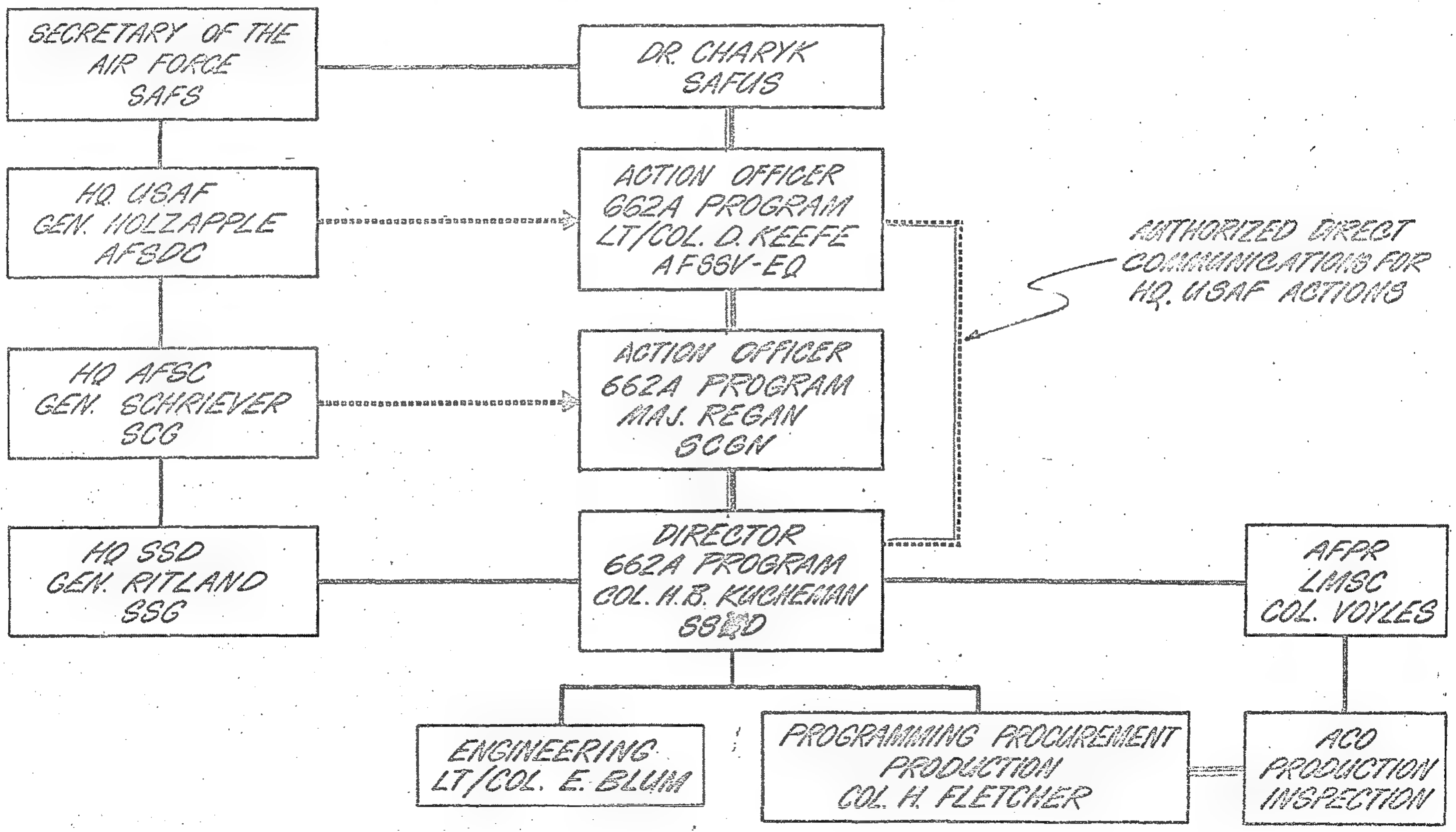
AGE ENG'R & SYSTEM TEST
BENZ

MANUFACTURING
N. MILAKOVICH

INSPECTION
G. TIGHE

PROCUREMENT
STEVENSON

PROGRAM 662A MANAGEMENT CHANNELS


SECRETARY OF THE AIR FORCE SAFS
DR. CHARYK SAFUS
HQ USAF GEN. HOLZAPPLE AFSDC
ACTION OFFICER 662A PROGRAM LT/COL. D. KEEFE AFSSV-EQ
AUTHORIZED DIRECT COMMUNICATIONS FOR HQ. USAF ACTIONS
HQ AFSC GEN. SCHRIEVER SCG
ACTION OFFICER 662A PROGRAM MAJ. REGAN SCGN
HQ SSD GEN. RITLAND SSG
DIRECTOR 662A PROGRAM COL. H.B. KUCHEMAN SS[illegible]D
AFPR LMSC COL. VOYLES
ENGINEERING LT/COL. E. BLUM
PROGRAMMING PROCUREMENT PRODUCTION COL. H. FLETCHER
ACO PRODUCTION INSPECTION

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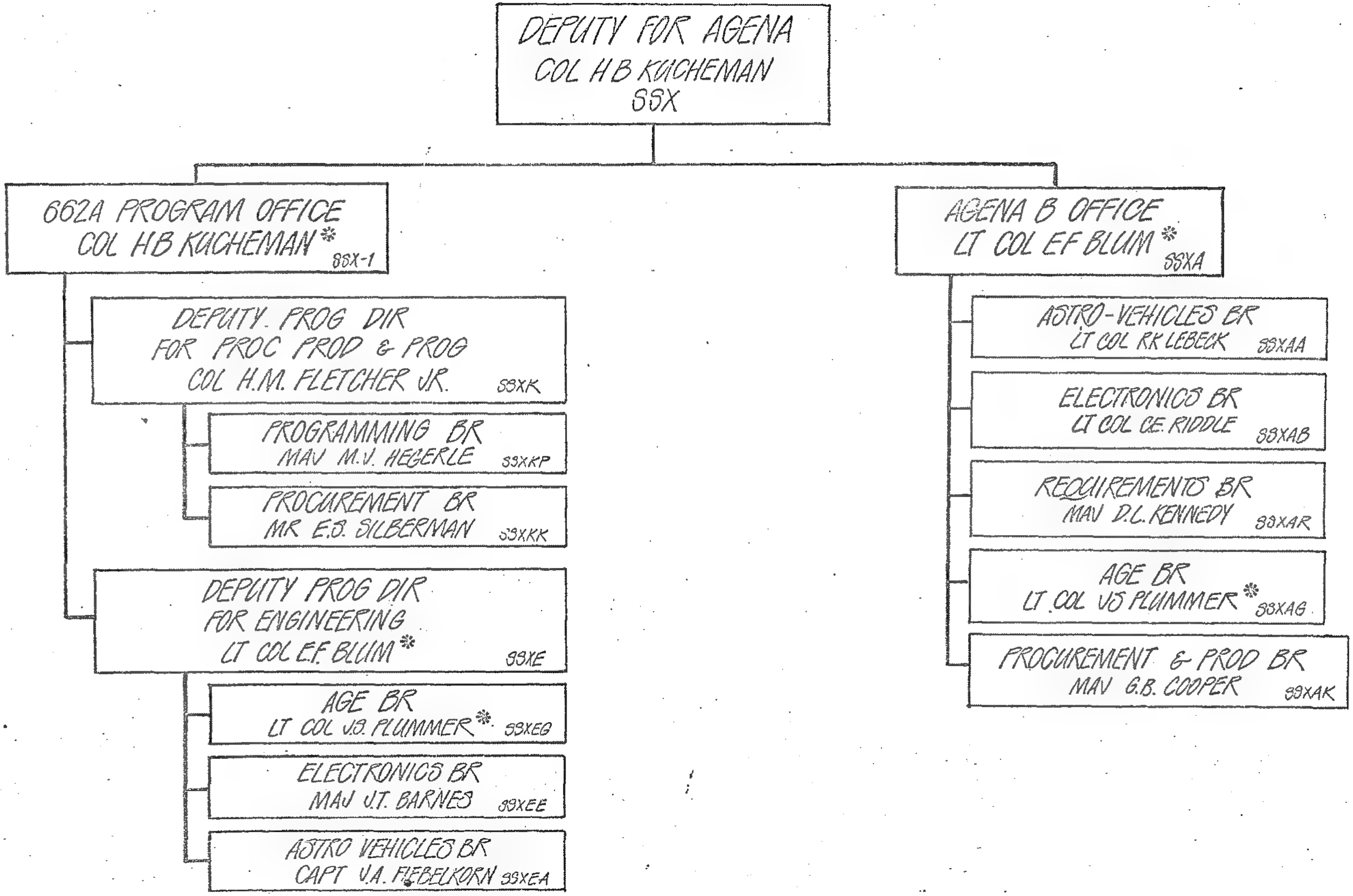
SSD ORGANIZATION



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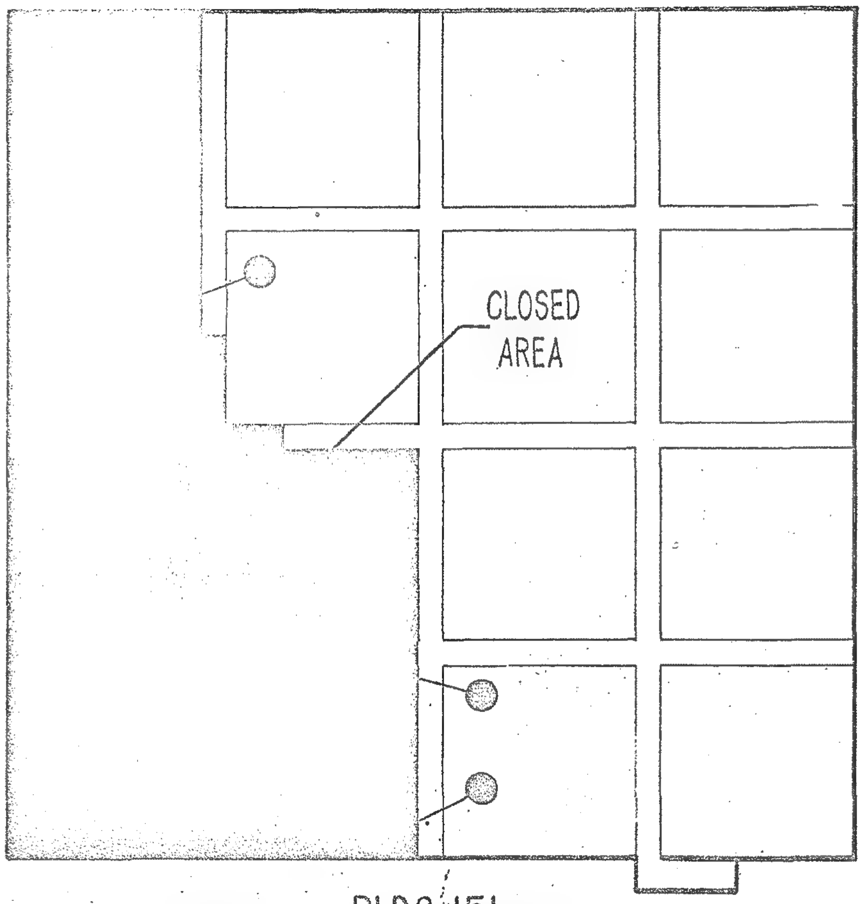
PROGRAM 662A PLANT LAYOUT



BLDG 151

● KEY CARD ENTRANCE

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S[illegible]-1/Maj Hagerle/3911

Agena D Programming Data 19 Dec 61

S[illegible] (Lt.Col Strathy)

1. Reference our discussion on 15 Dec 61 regarding Agena D inputs to the special budget exercise in support of future space planning.

2. As agreed to in our referenced discussion, the Agena D has no direct contribution for fiscal requirements in FY 63 and FY 64. A brief summary of the Agena D Program Plan follows for your information:

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a. The Agena D Program consists of the design, development, and production of a standard second stage booster to satisfy DOD space program requirements. The Agena D will be adapted after delivery to the using programs to satisfy individual program requirements.

b. The Agena Program Plan calls for design and production of Agena D vehicles, plus tooling, sufficient to maintain a production rate of five vehicles per month. The production rate initially planned for 5/month will be governed to conform to program requirements.

c. For program planning, the standard unit cost for the Agena D is 1.5M per vehicle through FY 64. This cost includes all costs associated with the vehicle until DD-250 acceptance, plus sustaining engineering, spares, and system improvements. This cost does not include optional or peculiar equipment and launch costs. It is anticipated that the unit cost will decrease with time based on the required production rate. The production rate will be controlled by program requirements and unit costs by actual costs.

d. The Agena D will be funded completely with P-630 reimbursable funds. The 662A Program Office has requested that 22.4M be furnished to fund the initial design and development costs of the Agena D. If these funds are received, they will be used to replenish this portion of the reimbursable account. Assuming that the 22.4M is provided, the using programs will replenish the remaining portion of the reimbursable account and be required to budget for the Agena D upon delivery. Any space program that has a requirement for an Agena D vehicle in FY 63 or FY 64 will have to include 1.5M Agena D in their budget for the fiscal year of delivery. Over and above this 1.5M, the programs will be required to budget for optional and peculiar equipment plus launch services.

3. Any questions regarding Agena D program planning requirements should be directed to Maj Hegerle (SSTDL), Extension 3911.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agena

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Hold FOR Action
Call @ Fletcher Jr
Capt SDO

Agena D

REC'D → SSZ 138

28 DEC 1961 03 55

1961 DEC 27 PM 8:21

INFO SSVX

SSZE

CZCBKA294ZCSJA243
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FM LMSC SUNNYVALE CALIF
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INFO RJWZBK/AFSSD LOSANGELES CALIF
AF GRNC
BT

UNCLAS LMSC A071753/62-41/100. DOUGLAS ACFT ATTN: D. MCCALLUM A/260 DM-21. AFSSD FOR SSZD, SSVXE. ATTN: MAJOR R.B. MOORE. ATTN: CAPT J.H. JOHNSON. SUBJECT: FINALIZED INTERFACE CONFIGURATION OF THE DM-21 AGENA D. REFERENCE: (A) A2-260-TSP-437 (LMSC/A070263)- LAUNCH DATES FOR AGENA D, 15 DECEMBER 1961 CONFIDENTIAL. (B) LMSC/A087405- SYSTEMS DESIGN REQUIREMENTS FOR THE ELECTRICAL INTERFACE BETWEEN THE DM-21 THOR BOOSTER AND AGENA D VEHICLES, 6 DECEMBER 1961. (C) LMSC/A071553- THOR DM-21/AGENA D ELECTRICAL INTERFACE SPECIFICATION 26 DECEMBER 1961. (D) LMSC DRAWING 1324764, MECHANICAL INTERFACE THOR- NASA PROGRAM (TOTAL 142 ATTACH HOLES). IN REPLY TO ITEM 2,

PAGE TWO RJWZSJ 12

REQUEST FOR FINALIZED INTERFACE INFORMATION, REFERENCE (A), LMSC HAS FINALIZED THE ELECTRICAL INTERFACE AS INDICATED BY REFERENCE (B). THIS INTERFACE HAS BEEN FORWARDED TO AFSSD FOR THEIR DISPOSITION BY THE COVER LETTER, REFERENCE (C). DURING THE 1 NOVEMBER 1961 VISIT OF A. SCHALLENMUELLER AND W.R. PARKER TO DAC, A COPY OF THE MECHANICAL INTERFACE THOR-NASA PROGRAM, REFERENCE (D) WAS GIVEN TO DAC AS THE AGENA D MECHANICAL INTERFACE. THIS DRAWING, WHEN USED IN CONJUNCTION WITH TOOL NO. 1307005-14E, REPRESENTS ESSENTIALLY THE CURRENT MECHANICAL INTERFACE FOR THE AGENA D/THOR COMBINATION. RELEASED DRAWINGS FOR THE AGENA D WILL CONFORM TO REFERENCE (D) EXCEPT THAT THE TOOL NO. 1307005-14E WILL BE REFERENCED, AND THE HOLE LOCATION TOLERANCES WILL BE .010 INSTEAD OF .060. THE AGENA D/THOR INTERFACE DRAWING WILL HAVE A DIFFERENT DRAWING NUMBER AND REFERENCE AXIS SYSTEM. SIGNED R. WELLER ENGINEERING DIRECTOR SPACE SYSTEMS DIVISION

BT
28/0200Z DEC RJWZSJ

63893

SSXD
Reading file
139

28 DEC 1961

SSXD/Lt Col Blum/4140

Procurement of Optional Equipment

[illegible]

1. Reference our previous discussion with Mr. O'Green on the desirability of procuring optional equipments thru the Agena D contract. LMSC has reviewed the various optional equipments to be used on the Agena D and has prepared a recommended procurement category for each item (see attached list).

2. The AI and AII categories are those items that would be procured by SSXD on the Agena D Contract. The B category would be procured by the Program Office (SSD) on their mission peculiar contract. A detailed explanation of the categories is as follows:

a. AI items manufactured or procured in quantity and maintained in store for use as needed by Agena D Project (LMSC).

b. AII items manufactured or procured as needed for the using program by the Agena D Project (LMSC).

c. B items procured by the Program Office (LMSC) from the qualified source.

3. Because of the immediate requirement for procuring the optional equipments needed through 1962, i.e., Discoverer, an early decision is required on whether we should set up such a store capability. You will note that a number of the optionals are C&C equipment which would require changes in equipment responsibility at SSD if procured as recommended.

4. The attached list shows the numerical requirements and costs for these equipments through 1962. This would entail providing funds in the near future of $1.5 million to do business this way. Since there are no available Agena D funds to procure the equipments in this manner, the Program Offices must provide these funds.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agena

1 Atch
List of Optional Equipment

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SSXD

28 Dec 61/vm